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ORIGINAL ARTICLES.

THE PROSTATE GLAND.

A Review of its Anatomy, Pathology, and Treatment.

Read in the Section on Surgery and Anatomy, at the Thirty-Eighth Annual Meeting of the American Medical Association, June, 1887.

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The importance to the genito-urinary surgeon of a due appreciation of the pathological changes underlying a sound system of therapeutics, of that portion of the urinary canal called the posterior or prostatic urethra, and surrounded by that composite body called the prostate gland, must be my apology for entering into a consideration of its minute anatomy with considerable detail.

Anatomy.—The prostate gland, or more properly speaking the prostate muscle, is a composite organ composed of unstriped muscular, fibrous, elastic, connective, glandular, nerve, vascular, lymphatic, and a small amount of striped muscular tissue. It resembles a truncated cone in shape; its base surrounding the neck of the bladder, its apex terminating at the membranous urethra, from which it is separated by the posterior or deep layer of the triangular fascia or triangular ligament. Its position in the erect posture of the body is obliquely downwards and forwards. It is placed just below and behind the lower border of the symphysis pubis, and distant from the same from three- to five-eighths of an inch, the intervening space being occupied by fascial cellular and muscular tissues. It rests upon the second portion and the junction of the second and third portions of the rectum. From a series of fifty-three healthy adult prostates examined by Sir Henry Thompson, he makes the measurements as follows: From base to apex, from 1.3 to 1.8 inches; measurement most commonly found, 1.4 inches; the greatest transverse measurement near base, from 1.4 to 2 inches; measurement most commonly met with was 1.75 inches; the point of extreme thickness ranged between .55 and .95 inches; measurement most commonly met with was about .7 of an inch. The measurements given by Dupuytren are considerably larger, who believed the prostate to measure from 20 to 24 lines transversely, and to be 10 or 12 lines in thickness, and upon these estimates his calculations for the operation of bi-lateral lithotomy were based. Deschamps, Senn, Gross, and Hodgdon, all of whom made practical researches relative to the size of the prostate, practically agree with Thompson, whose conclusions, I think, we may safely accept as the average size of the normal prostate. The weight of the adult normal prostate may be placed at from 4 to 6 drachms. This accords with the conclusions of Thompson, also those of Dr. Messer, of the Royal Naval Hospital, who dissected 100 prostates; 45 are classed as normal in size and average in weight, 4 drachms and 57 grains.

The prostate consists of two lateral, symmetrical lobes, each of which is somewhat pointed anteriorly and terminate posteriorly in rounded extremities which, projecting somewhat, present an angular interval or notch between them. These two lobes are united by two intermediate masses, one of which is placed in front of the urethra, and consists of muscular and connective tissue, and is called the anterior commissure or isthmus. The other is placed behind the urethra, and lying between the posterior borders of the lateral lobes their whole length consists of a stratum of unstriped muscular, glandular, and connective tissue, thin and narrow in front; but posteriorly this stratum becomes thicker and sometimes has a rounded form, as if it were an independent formation. The anterior or thin portion of this structure has received the names of the posterior isthmus or commissure, while the posterior rounded extremity or base has received the appellation of the third or middle lobe of the prostate, the propriety of which appellation Sir Henry Thompson calls in question. Sir Everard Home appears to have first conceived the idea that the portion of the posterior connecting band of prostatic tissue which forms a rounded and thickened border should be classed as an independent lobe, and this idea has been accepted by most English anatomists. The position of Thompson, that in the normal prostate there is no portion of the central connecting mass of prostatic tissue, which presents sufficiently the appearance of an independent formation to entitle it to the appellation of the third or median lobe, is also taken by Cruveilhier, and by most of the French anatomists. Cruveilhier expresses the general opinion of French observers when he says that the ejaculatory ducts being received into a groove or channel in the substance of the prostate, a portion of variable size is indicated by them; but that it has no title to be called a lobe. It is not, he says, an iso-

lated piece, and should be called the median portion. If we retain the term lateral lobes, we apply to the part anterior to the urethra the term anterior commissure, a part which is about one inch in length, and the term posterior commissure to that which corresponds to it for the same length behind the urethra; it leaves that thicker portion of the organ which lies behind the veru montanum, which is penetrated by the ejaculatory ducts, which is largely occupied by glandular structures and which is prone to great increase of size in age, to be designated by the term "median portion."

The prostatic urethra commencing at the neck of the bladder, continues through the prostate in the erect posture downwards and slightly forwards; the great masses of the organ lie on either side of the canal. There has been considerable difference of opinion as to which of the two commissures uniting these lateral masses was the larger or thicker of the two. Most observers believe that in the normal condition the larger portion is found behind the urethra. Mercier, on the other hand, asserted that the anterior stratum is larger and thicker than the posterior. Thompson found, on examination of ten healthy adult prostates, the anterior and posterior commissures to be of about equal thickness in 7; posterior commissure thickest in 2, and the anterior in 1. The vesical boundary of the prostatic urethra is the uvula vesicæ, seen as a slightly rounded prominence of the floor of the neck of the bladder. From this point forward the canal gradually expands a little and presents a general indication of hollowing or depression of the floor, varied by a central longitudinal elevation, the veru montanum. This eminence commences in a faint whitish line directly in front of the uvula, and gradually rising for 6 or 8 lines, reaches its highest point (about 1/8 inch) in the central line of the urethra. It widens and becomes rounded at the highest point, and then somewhat suddenly diminishing in size as it advances forward, exhibits on the anterior slope a small opening, then gradually lessening leaves the prostatic and enters the membranous urethra. The depression of the prostatic urethra (*sinus prostaticus*) is then divided into two lateral furrows, one on each side of the veru montanum. In these furrows may be observed numerous little orifices twenty to thirty in number, the mouths of the prostatic ducts. They are found chiefly on each side of the eminence of the veru montanum, but a few may be seen both before and behind it. The length of the prostatic urethra varies from 1 1/8 to 1 1/4 inches. Its diameter is usually represented by a fixed measurement, but as the surfaces lie in apposition, except when distended by a functional act, it is difficult to represent accurately the calibre. The walls and surrounding structures are extensible and the calibre of the canal is consequently variable, corresponding within certain limits to the amount of pressure exerted. Without unduly extending them, the diameter opposite the crest of the veru montanum may be placed at 5/16 to 3/8 inch, but at each extremity of the prostatic limit the diameter is rather less.

The whole of the urethra thus examined presents a surface of mucous membrane which is covered with cylindrical epithelium arranged in two layers, a superficial and a deep layer. The membrane has, when fresh, a pale pinkish yellow tint, the structures which underlie it being pale unstriped and muscular, connective and elastic tissues, with fewer minute blood-vessels than are found in the membranous and bulbous portions of the urethra, where a redder tinge consequently exists. These sub-mucous structures are composed chiefly of the pale unstriped muscular fibres, intermixed with a small proportion only of the white fibrous and elastic tissues. The muscular fibres are arranged in the longitudinal axis of the urethra and form a thin but somewhat dense and strong layer immediately beneath the mucous membrane throughout the prostate. They continue to have a similar relation throughout the canal, although in smaller quantity than in this situation. Posteriorly, they are continuous with the muscular layer immediately underlying the mucous membrane of the bladder. It is by a development of these longitudinal muscular fibres of the urethra that the veru montanum is formed. They divide to define the mouth of the utricle and admit the orifices of the prostatic ducts. These cavities are lined with a delicate membrane and epithelium like that of the prostatic urethra itself.

The precise mode of arrangement of the minute blood-vessels beneath the prostatic mucous membrane is as follows: From the neck of the bladder to the most elevated portion of the veru montanum very few of them are to be seen, and the mucous membrane is of a yellowish tint from their paucity in this situation. In front of it, however, numerous fine vessels course forwards, side by side, for the most part in the axis of the urethra, but with a slight oblique divergence outwards, right and left of the pale line of the veru montanum prolonged into the membranous portion. The mucous membrane is therefore redder in tint anterior to the eminence, and on examining it with a magnifying glass it is seen to be due to the minute and longitudinally branching vessels just described.

The utricle or vesicula prostatica just described, is a small sac already referred to as opening on the anterior aspect of the veru montanum. It is somewhat oval in form, measuring ordinarily from 2½ to 4 lines in length and from 2 to 3 lines at its greatest breadth, although occasionally found both larger and smaller. Its posterior extremity is the widest and the anterior is the narrowest portion. It is obliquely placed, the long diameter being directed towards or a little below the median portion and in the course of the ejaculatory ducts, which lie contained in the substance of its lateral walls. The external orifice or mouth of the utricle is sometimes extremely small, and it has been seen occasionally altogether wanting. The orifices of the two ejaculatory ducts were then found opening on the anterior of the veru montanum. The sac of the utricle is made up of mucous membrane covered with cylindrical epithelium and of a sub-mucous tissue attaching it to some bands of white fibrous and pale muscular fibre, by which it insensibly unites with the mass of structures

around. It contains mucous follicles which appear sometimes to secrete a dark reddish brown and jelly-like material, at least such is found sometimes, nearly filling the sac. When in a quiescent state the sides of the prostate urethra are pretty closely applied to each other and the mucous membrane then lies in very small delicate longitudinal plaits, with a very shallow groove between each. A transverse section shows the canal to have a form generally approximating triangular, the apex being upwards. The common duct formed by the junction of the vas deferens and of a duct of the vesicula seminalis enters, in close proximity with its fellow of the opposite side, at the base of the prostate, about three or four lines below the opening which transmits the urethra. There is a well-marked depression, in form pyramidal, with the apex directed inwards, in the base of the organ, which corresponds with the apex of the notch separating the two lateral lobes. This depression penetrates the substance of the posterior or median portion, about three quarters of the mass lying between the ducts and the urethra, the remaining one-fourth forming a thin layer between the ducts and the under surface of the prostate. This proportion varies in different subjects; in all, however, the greater part of the mass lies between the ducts and the urethra. A thin stratum of tissue one-fifteenth to one-twentieth of an inch in thickness separates the two ducts as they perforate the organ side by side. They then pass directly to the utricle and continue their course embedded in the walls of that cavity, one on each side, their little slit-like orifices opening on the anterior part of the veru montanum, at the mouth of the utricle itself.

The ejaculatory duct, from its place of entry at the base of the prostate to the orifice at the utricle, is about six lines in length. It is composed of a mucous lining or an inner coat, some pale muscular fibres surrounding it, with connective tissue intervening. The muscular fibres are arranged longitudinally in the axis of the duct, and are continued in those which underlie the urethral mucous membrane close to the mouth of the utricle. It will be seen from the foregoing description that the pale or unstriped muscular fibre enters largely into the composition of the prostate. This was first declared by Dr. Handfield Jones, in 1847. In 1848 Kölliker, of Würzburg, declared that the larger portion of the organ was constituted by the pale muscular tissue, and that the smaller portion only consisted of glandular tissue. Subsequently Prof. Ellis, of University College, London, Eng., closely investigated the same subject, and came to a similar conclusion.

The tissues constituting the prostate passing from the urethra outwards consist, *first*, of the mucous membrane of the urethra; *second*, of a delicate layer of longitudinally disposed pale, or unstriped muscular fibres, mingled with a good deal of connective tissue and some elastic fibres, this layer forming part of a system of longitudinal fibres underlying and surrounding in greater or less quantity the whole urethral canal; *third*, a circularly disposed layer of pale or unstriped muscular fibres of considerable thickness posteriorly, where they become continuous with the circular fibres of the bladder and becoming thinner as they approach the membranous portion, over which they proceed and then terminate. This layer contains also connective and elastic fibres like the preceding; *fourth*, beyond this lies the greater part of the glandular structure, properly so called, which intermingles with and is supported by a considerable portion of tissue composed in part of pale muscular fibre and in part of connective and fibrous tissues, which, interlacing with each other, constitute the rest of the organ. It is this composite structure which, disposed in masses chiefly in the lateral direction on either side, gives form and character to the organ; *fifth*, the enveloping fibrous capsule just beneath this capsule, or the exterior of the proper stroma of the prostate, is a layer which consists of unstriped muscular tissue, attached to the inner surface of the capsule, and also continuous posteriorly with the external muscular layer of the bladder.

The middle layer of unstriped muscular fibre forms a dense interlacing stratum in the meshes of which is found the glandular tissue. The latter consists of tubular alveoli opening into elongated excretory ducts lined with columnar epithelium. The alveoli are connected together by connective tissue associated with fibrous prolongations from the capsule of the gland, and with muscular tissue, the interglandular connective and muscular tissue being richly supplied with blood-vessels and nerves, the arterial supply coming from the internal pudic, the inferior vesical and the hæmorrhoidal. Its veins form a plexus, the prostatic, around the gland lying between the proper capsule and the sheath of the gland derived from the recto-vesical fascia, and continous anteriorly with the posterior layer of the triangular ligament, and receiving in front the dorsal vein of the penis and ending behind in the internal iliac vein.

The nerves of the prostate are the prostatic plexus of the sympathetic, which is derived from the inferior hypogastric or pelvic plexus, the latter plexus being made up by a union of branches from the hypogastric plexus, from the 2d, 3d and 4th, sacral nerves, and a few filaments from the sacral ganglia of the sympathetic. It is well-known that in certain affections of the bladder, rectum, prostate, etc., pain is felt along the perineum, in the penis, over the buttock, and down the thigh. These parts are supplied by the pudic and small sciatic nerves, and the reason for the pain is explained by noticing that the very spinal nerves that join the plexus for the viscera, give off also, the pudic and small sciatic nerves, the former from the third and fourth sacral; the latter from the second and third. Thus, the pelvic viscera and the skin of the buttock perineum and external genitals are all kept in association by the same spinal nerves. The pain at the end of the penis felt in prostatic affections, and in stone or other maladies involving the bladder neck, is probably explained by the fact that the prostatic nerve plexus, (that supplies both the gland and the neck of the bladder) is continued to the end of the penis as the cavernous plexus. It terminates at the very spot where the penile pain is mostly complained of viz.: at the posterior part of the glans.

The ligamentous and muscular attachments of the prostate, the latter of which contribute in some measure to its mobility, consist first of the pubo-prostatic or anterior true ligaments of the bladder, and formed by the anterior border of the recto-vesical portion of the pelvic fascia, which passes from the posterior aspect of each pubic bone at its lower border, as a strong whitish band to the anterior surface of the prostate on its way to the bladder, where it becomes continuous with the fibrous structures which surround the neck of that viscus and belong to its muscular apparatus. The muscular attachments of the prostate are the levatores prostatæ. Each muscle of this pair arises from an oblique line on the posterior surface of the pubic bone, its most anterior fibres descending to meet those of its fellow just in front of and below the apex of the prostate, its middle and posterior fibres continuing to be inserted along the lateral borders. In this manner the organ is, in a measure, suspended in its place.

From the foregoing description we see that the prostate gland is not in the sense in which we describe the kidney, or the liver, or the heart, an organ composed of structures separable from and independent of the surrounding tissues, but as we have seen all its tissues except the glandular, form a part of and are continous with adjoining structures. We notice too, that according to the most careful and reliable observers, such as Kolliker, Ellis, and others, that the glandular element constitutes one-third or less than one-third of the whole organ, so that it is more correct, anatomically to speak of it as a muscle. We must also bear in mind that the glandular element is found chiefly in the posterior part of the two lateral lobes, and in the posterior commissure; none in the anterior commissure.

Pathology.—The most common as well as the most important, morbid states to which the prostate is subject, either consist in, or are associated with deviations from the natural size and form, as well as from the natural disposition of the structures entering into its composition. Enlargement of the prostate commonly called hypertrophy, is an affection of a certain proportion of men after passing the prime of life, or to speak more definitely, the 55th year. It is not an hypertrophy, inasmuch, as it is not, as a rule, a symmetrical growth of all its parts and tissues, but the enlargement affects sometimes one, sometimes both lateral lobes, sometimes the median portion alone, sometimes one lobe and the median portion, and sometimes the anterior or the posterior or both commissures. Thompson found, as a result of the examinations of 123 enlarged prostates—found in four of the principal museums of London, including that of the Royal College of Surgeons—that in 74 cases, both lateral and the median portion were pretty equally enlarged. In 19 cases, both lateral and median portions enlarged, but the latter in greater proportion than the former. In 8 cases, general enlargement, but the right lobe predominating and very decidely larger than the left. In 11 cases, general enlargement, but the left lobe predominating. In 5 cases, lateral lobes only enlarged. In 3 cases, the anterior commissure only or chiefly enlarged, and in 3 cases the lateral lobes and anterior commissure only enlarged; median portion being normal.

The results of Dr. Messer's examinations practically agree with Sir Henry Thompson's, and both observers found from the examinations of the prostates of 164 men at and above 60 years of age, that senile enlargement of the prostate, so far from being a change, invariably or even usually present in elderly men, is an exceptional condition, this condition affecting to a greater or less extent about one in three individuals, and that in about one in seven or eight the senile change was sufficient to produce appreciable symptoms during life.

The character of the enlargement is not such as follows an inflammatory action, nor is it caused by any of the results of inflammation corresponding with those produced by the action of inflammation in other organs, but is a slow and gradual process due to an increased formation of tissues naturally present in the prostate itself or analogous thereto. The enlargement may be due to a proportionate increase in both the stromal and the glandular elements, constituting, if the whole organ is affected a true hypertrophy, or the stromal constituents may be developed largely in excess of the glandular constituting stromal hyperplasia, or we may have an excessive glandular development constituting glandular hyperplasia, or we may have a rearrangement of the normal structures of the prostrate, fibrous and glandular in the form of tumors.

The etiology of senile enlargement of the prostate has been a subject for theorizing and speculation since the days of John Hunter, who, while he said nothing directly as to its cause stated that he had seen anti-scrofulous remedies used in several cases. Sir E. Home, attributed it to the slow return of blood from the neck of the bladder, or in other words to passive congestion. Sir Charles Bell considered it to be caused by any source of irritation which produced frequent contractions of the organ. Astley Cooper believed it to be a normal senile change such as the arcus senilis or the ossification or calcification of the arterial coats. Sexual excesses and celibacy have both been charged with being the causal factor. Desault, Amussat, Civiale and Mercier, all discuss the subject but do not agree as to the cause. The theory of Thompson is that the prostate being homologous to the uterus histologically, possesses the same inherent tendency to generate and develop fresh elements identical in character with those proper to the structure of the organs. This tendency only existing during a certain limited period of life, say in general terms between 35 and 50 in the female and between 50 and 70 in the male, in the one case appearing in the form of uterine hypertrophy or tumor; in the other in that of prostatic hypertrophy or tumor. These phenomena in the female are observed perhaps with greater frequency in the virgin than in the impregnated female, showing that they do not depend upon any force called into play by pregnancy, but are possibly inherent in the structure of the organ. This theory

of Thompson's would certainly seem more plausible than the others and may I think be adopted in the absence of a better one. With regard to the rapidity of senile enlargement, Thompson believes that may be influenced by those conditions that many eminent observers believe to be the cause of the enlargement itself, viz.: all forms of irritation and congestion. In other words, the vital process of growth and tissue development are quickened and favored by whatever favors an increased supply of blood to the organ.

One of the most important results of the anatomical changes that take place in the prostatic urethra and the neck of the bladder, as the result of enlarged prostate, is the interference with the normal flow of urine from the bladder. Now, the amount of obstruction is not in direct proportion to the enlarged condition of the prostate, but rather depends upon the character of the enlargement. Obviously, one of the first effects of an enlargement that is symmetrical or nearly such, is a lengthening of the prostatic urethra, but this alone need not cause the obstruction. If the increased tissue is confined entirely to the lateral lobes or if in addition the median portion be but slightly increased the posterior urethra becomes lengthened, narrowed from side to side, but increased in its vertical diameter, so that no obstruction, or but slight interference with the outflow of urine results. Again, if the enlargement is confined to one lateral lobe, the prostatic urethra become elongated and curved with the convexity of the curve towards the normal lobe. When we have enlargement of the median portions of the prostate, obstruction is likely to follow but not necessarily. The growth may be centric or it may be eccentric or peripheral. In the latter case we may have no obstruction while a very moderate degree of central enlargement of the median portion may present an obstacle to the urinary outflow of the most serious nature, so that one cannot decide absolutely by a tactile rectal examination, as to the extent or character of the prostatic barrier. In some cases we may find on rectal examination a growth of the median portion presenting to the finger a very large and firm tumor, and yet in passing the sound the beak enters the bladder with only a very moderate depression of the handle showing the enlargement to be of eccentric character. Of course the converse of this proposition holds true. With a scarcely perceptible encroachment upon the rectal calibre, we find when the sound enters the prostate it comes to a sudden halt, and will only advance when the point is turned vertically, or nearly vertically upwards.

From what has been said relative to the effect upon the outflow of urine, of the different forms of prostatic enlargement, we can with little difficulty foresee that the symptoms will depend upon the part of the prostate affected. The rapidity of the increase of the abnormal tissue and the presence or freedom from exciting causes, such as exposure to cold, indulgence in wine or malt liquors, etc. The first symptoms are a diminution in the degree of force with which the urine is expelled; next a hesitation in the appearance of the stream after voluntary effort; then frequency of micturition due to overflow from retention; feeling of weight; fulness and uneasiness about the hypogastrium, rectum and perineum, and these symptoms, unless obviated by the judicious use of the catheter and a proper attention given to the condition of the bowels, the diet, and the avoidance of excesses of all kinds, with a view to prevent all congestions and irritations of the affected tissues, gradually lead to complete urinary retention and bring us face to face with the question of palliative versus operative measures.

If we stop a moment to consider the vast number of factors that may contribute to bring about an inability to empty the bladder, and the ever-varying degree in which each one of them may preponderate, we must, I think, admit that no hard and fast line of treatment can be recommended to overcome urinary obstruction associated and more or less dependent upon prostatic enlargement. No one would think of proposing an operation until palliative measures had been exhausted, until the degree of atony of the bladder, if present at all, had been determined, and further, the enlargement ascertained to be of the median portion, and of such shape and relation to surrounding parts that it can be isolated, and when isolated and removed offers a reasonable prospect of relieving the obstruction. Mercier, who operated 300 times previous to 1856, for prostatic obstructions, and obstructions caused by a bar of mucous membrane, or mucous membrane and sub-mucous muscular tissue at the neck of the bladder, was of the opinion that it was a safer operation to crush the obstructing part than to excise it.

In more recent times, during the early part of the last decade, Professor Bottini has adopted the method of removing the prostatic obstructions by means of a wire heated by the electric current. Professor Guyon, of Paris, who examined three patients of Mercier some considerable time after the operation, was not pleased with the result, and adds, when we examine the pathological specimens which the autopsies of prostatic patients have furnished, it is rare indeed to meet with an organ so formed as to afford the slightest hope that by any proceeding of incision or excision an iota of benefit could have accrued to the case. Landerer, of Leipzig, reports, in the *Deutsche Zeitschrift für Chirurgie*, that in doing the median operation for stone, he accidentally crushed off two pieces of the middle lobe; he then removed the whole of the projecting body. The wound was healed in 14 days and the patient could urinate with a full stream. This favorable condition has now lasted 1½ years, so that he does not hesitate to recommend the operation of crushing of the middle lobe through the median perineal incision. In America, the operation of removing a part of the middle lobe by excision has been done by Belfield, of Chicago, and by others, but as to the present condition of the patients I am ignorant.

As this paper has already reached an undue length, I will close here, leaving what I have to say as to other forms of prostatic disease, together with clinical memoranda, for further consideration.

THE GRADUAL PREPARATORY TREATMENT OF THE COMPLICATIONS OF URINARY AND FECAL FISTULÆ IN WOMEN,

Including a Special Consideration of the Treatment of Pyelitis by a New Method, and the Prevention of the Evils of Incontinence of Urine by a New System of Drainage.

Abstract of a paper read before the Section in Gynecology of the Ninth International Medical Congress.

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In the course of my experience in the treatment of urinary and fecal fistulæ, as I encountered new difficulties, I have described from time to time the cases and the means by which I endeavored to overcome them, but all, especially the more recent of my results have not been published. The object of the paper, of which this is an abstract, is therefore, to set these latter before the profession, and to combine them with what I have already written. In this way, I hope to communicate, in a more systematic manner the results of my experience and observations, in this department of the subject of fistula, which have extended over a period of 34 years. The object of my method of treatment, preparatory to the performance of the operation for the closure of a fistulous opening, is to prevent and overcome the injurious effects of incontinence of urine, and to remedy the complicating injuries and diseases of all the organs involved. In other words, to remove as far as possible the obstacles in the way of the easy performance and success of the final operation, and to cause the diseased tissues to return to a state of health, so that, not only will the incontinence of urine be cured, but the functions of all the organs be preserved.

Treatment and Prevention of the Effects of Incontinence of Urine.—Inflammation and ulceration of the vagina, vulva and buttocks, due to the contact of ammonical urine, may be treated in the usual way, by cleanliness and by stimulating and astringent applications. Although by these measures, the sufferings of the patient are relieved to a considerable extent, when for any cause, the closure of the fistula is long delayed, it is of the utmost importance that we should possess some form of instrument by which the urine may be drained away, and its contact with the mucous membranes, integument and linen of the patient be avoided.

After many experiments, I have recently devised an instrument which accomplishes these results in a satisfactory manner, and have also been able to combine, in the same instrument, drainage with the dilatation of cicatricial contractions of the vagina. The forms of the instrument, which concern us here, are intended to secure drainage alone, and I have called them utero-vesical and utero-vesico-urethral drainage supports. The former is applicable to most cases, to all positions of the body and is the most convenient. The latter is suited to the recumbent position and to cases where the perineum is lacerated. These instruments can be introduced and removed by the patient, whenever necessary and without difficulty. They are self-retaining, small, simple, free from angles and sharp borders, are readily kept clean, excite no discomfort or irritation of the vagina, and do not press upon the rectum or bladder, nor interfere with locomotion.

While possessing all these qualities in a high degree, they collect the urine, and conduct it away with a degree of perfection that, to the patient, is a constant source of wonder and delight. I have now five cases in which the different forms of the instrument are in use. In one of these cases, there is entire destruction of the urethra. In all, the instrument functions perfectly.

The Treatment of the Complications of Urinary and Fecal Fistulæ.—Very few cases of fistula are simple. The same cause, the pressure of the child's head, which produced the perforation of the vesical or rectal wall, injures to a greater or less extent other parts of the vagina and frequently the uterus, ureters and urethra. These injuries and the distortions of the structures involved, the result of the contractions of the cicatricial material produced in the healing process, constitute the most frequent complications. In the worst cases, to them are added subsequent disease of these organs and the bladder, and fixation of the uterus, the consequence of puerperal cellulitis and peritonitis.

Cicatricial Contractions and Distortions of the Vagina.—General thickening and rigidity of the vaginal walls and narrowing of the vagina by the presence of cicatricial bands and adhesions, render the exposure of the fistula difficult, and tend to prevent the easy approximation of its borders. The operation for closing the opening is thus made difficult, and, owing to great tension, the sutures cut, and it fails.

The means by which I overcome these difficulties, are mainly, division of the cicatricial material and gradual dilatation of the vagina. In cases in which the vagina is very much contracted my method consists, first in the section of all the prominent bands and adhesions, and afterwards in the dilatation of the vagina with hard and soft instruments.

When it is neccessary to give ether, the patient is placed in the knee chest position and secured by means of an apparatus which I have had constructed for the purpose. In the ordinary treatment of the case, this is unnecessary, I place the patient simply in the supported knee elbow position. The parts are exposed to view by means of my dilating speculum, and perineal elevator, and the bands, which are at the same time rendered tense and prominent by these instruments, are divided while on the stretch by means of sharp and probe pointed bistouries, and the peculiar knife which I show you.

The subsequent dilatation of the contractions of the vagina is produced by hard and soft dilators. On account of differences in form and in the manner in which they are used, I have divided them into two classes, the vulvovaginal and intravaginal.

The hard dilators, which I show you, are made to combine drainage with dilatation. The vulvovaginal can be distinguished from the intravaginal by their greater length, and the beak-like extremity which

rests on the perinæum. The intravaginal instruments are worn altogether inside of the vulva, and rest upon the posterior surface of the arch of the pubes and perinæum. A set of the vulvovaginal dilators consists of five sizes, ranging from 30 to 50 millimeters in diameter, and a set of the intravaginal of eight sizes ranging between 30 and 65 millimeters.

The soft dilators are made of coarse sponge covered with oil silk, and may be of any size up to 70 millimeters in diameter or larger if necessary. The difference between the vulvovaginal and the intravaginal forms of these soft instruments is that the former are made longer but never so large, the sizes being graded like the hard instruments. I have been unable to combine drainage with dilatation, when the sponge instruments are used, but if they are frequently removed and the urine which they absorb, squeezed out, the vagina and vulva may be kept comparatively dry. Althought only a very imperfect sort of drainage, which I have called sponge absorption, can be obtained with sponge dilators, they are superior in many respects to the hard instruments. A much larger dilator can be introduced and being soft, it causes less pain. In virtue of its elasticity, the sponge accommodates itself to the shape of the vagina, when the organ is irregularly contracted and by the imbibition of urine, increases in size after introduction.

Time, patience and perseverance are all that are necessary to produce by the gradual division of opposing cicatricial bands and the systematic use of larger and larger dilating instruments, a distension of the vagina nearly equal to that caused by the child's head, at the time of the injury. As the dilatation proceeds, the exact nature of the lesions becomes more evident, and the form and relations of the fistula to the surrounding structures are more distinctly exposed to view; the cervix uteri which was perhaps altogether hidden, becomes visible, and the anterior and posterior culs-de-sac are restored; the vaginal walls are relaxed and the uterus made movable. The mucous membrane of the vagina loses its fiery red hue and assumes a natural pink color; the inflammatory thickening of the vaginal walls melts away beneath the pressure, and the borders of the fistula lose their leather-like hardness, become smooth and soft, and may be more easily approximated.

Fixation of the Uterus.—When there is great loss of tissue at the fistulous opening and the uterus is fixed, the remnants of the septum can never be sufficiently stretched to bridge the interval. The uterus must be rendered movable so that the cervix can be drawn down, and made subservient to the closure of the opening.

The fixation of the uterus may be overcome by upward pressure, made with the dilators already described and by a sort of passive motion of the uterus, which is secured by traction, frequently repeated, with a hook fastened in the cervix.

The practical use of these measures is sufficient to demonstrate their efficiency, but, in order to render the results obtained by them clear to all, I made an experiment, while in Vienna, in 1875, on a case of fistula, in which there was immobility of the borders, due to fixation of the uterus; the results of this experiment have been reported by Bandl.[1] At the beginning of the treatment, the edges of the opening could not be approximated by any amount of force. After the section of the band and dilatation of the vagina had been continued for 4 days, they could be brought together imperfectly, by the exercise of 2,800 grams of traction, measured by a spring scale. After the continuance of the treatment for 17 days longer, 120 grams were sufficient for this purpose, and the operation for the closure of the fistula had become easy.

The advantages, secured by the use of these preparatory measures, are also well illustrated in certain more special forms of fistula. By the aid of my button suture, and these preparatory measures, with the modifications which I have described fully in my paper, I have been able to treat successfully vesico-utero-vaginal fistulæ with incarceration of the cervix uteri in the bladder, restoring the cervix to its natural position in the vagina and closing the vesical opening without the formation of a pouch in the bladder; I have been able to reach and to close vesico-utero-cervical fistulæ, attended with loss of tissue, even when the opening was situated entirely above the vaginal junction, and have met with the same success with recto-utero-vaginal fistulæ, with incarceration of the cervix in the rectum. All these conditions have been, and are still, considered without remedy, except by kolpokleisis, occlusion of the os uteri, or by the perpetuation of the incarceration of the cervix in the bladder or rectum.

Cystitis, Contraction and Prolapse of the Bladder are frequent complications and must be treated.

The principal cause of *cystitis* is the retention in the bladder of stagnant pools of urine in pouches of the mucous membrane, or as the result of imperfect drainage of the urine through the fistulous opening. The saculation of the vesical mucous membrane at the base of the bladder, is due to the distortion of the anterior wall of the vagina by cicatricial bands.

The treatment of cystitis consists, therefore, in the frequent irrigation of the interior of the bladder, and the obliteration of the folds of the mucous membrane by dilatation of the vagina.

Atrophy or *contraction* of the bladder is best treated by obturation of the fistulous opening, by means of an oiled silk sponge dilator placed in the vagina. A sufficient quantity of urine is thus retained in the bladder to gradually distend its walls.

A *prolapsed bladder* should be reduced in the supported knee chest position, the abrasions of the mucous membrane touched with nitrate of silver, and the reproduction of the condition prevented, by filling the vagina with one of the forms of dilators already described.

Injuries of the Ureters.—One of the ureters may be opened by a slough, which does not penetrate the whole, thickness of the septum. By an injury of this kind, a uretero-vaginal fistula is formed. One or both of the ureters may also form, a part of the border of a vesico-vaginal fistula. In the first form

[1] Wiener Medizinische Wochenschrift. Nos. 49–52. 1875.

of injury, the ureter must be turned into the bladder before the fistula is closed, thus converting it into a vesico uretero-vaginal fistula. In all cases, when the ureters are involved, unless they are slit up on their vesical surfaces, the orifices are liable to be obstructed by the sutures or be occluded by the apposition of the borders of the fistula. This little operation is best done, as a preparatory measure, long enough before closure of the fistula to allow healing to occur. Stenosis and eversion of the orifices of the ureters frequently occur in these cases, and it is therefore important to ascertain before closing a fistulous opening, whether these conditions exist. When such a condition is present, the lower part of the ureter should be divided, and the incision should extend through the vesical mucous membrane, and be followed by dilatation with sounds, if necessary.

Pyelitis.—The causes, which lead to the development of pyelitis as a complication of fistula are, cystitis and obstruction of the ureter. The principal symptoms, which I have observed to be present in this disease, are: more or less constant pain in the lumbar region, attacks of renal colic, nausea and vomiting, anæmia, emaciation and the cachexia of chronic suppuration. At times, the course of the disease is varied, by the occurrence of severe rigors, accompanied and followed by great pyrexia. Pus and blood may be seen to exude from the orifice of the ureter which is exposed to view by the fistulous opening.

I have recently devised a new method of treatment for this disease, and have used it in two cases, both of which are now cured. It consists essentially, in dilating the ureter and washing out the pelvis of the kidney by means of a catheter.

In my first case, which I have reported at length in my paper, the pyelitis involved the pelvis of the left kidney, and occurred as a complication of the large urethro-vesico-utero-vaginal fistula, implicating both ureters and the greater part of the septum. It probably was occasioned by the obstruction of the orifice of the ureter, due to the contraction of the cicatricial border of the fistula, of which it formed a part.

The patient was suffering, from frequent paroxysms of renal colic; rigors were occurring at short intervals, and her temperature was constantly elevated, ranging between 102° and 105°. Pus could be seen exuding in considerable quantities from the left ureter. The patient was emaciated and her complexion was pale and sallow. She was evidently rapidly dying from exhaustion, induced by the fever and the pain.

The condition of the patient continued to grow worse, and the case more hopeless, until December 26, of last year, when I passed a small olive-tipped catheter through the ureter into the pelvis of the kidney. Carbolized water was then injected with a syringe, and a small quantity of fœtid pus washed out. The catheter was allowed to remain in place 24 hours without causing any evil consequences, and the irrigation of the pelvis of the kidney repeated, at frequent intervals. Afterwards the douching was repeated daily, the catheter being introduced and removed without difficulty.

The condition of the patient improved after this treatment was begun with remarkable rapidity, the temperature became normal in 24 hours, the pus gradually diminished in quantity, and, at the end of six weeks entirely disappeared. The patient has since gained about thirty pounds in weight, her general health has become good, and the fistulous opening is now ready for operation.

In the course of the treatment of this case, I made several interesting observations on the relative secreting capacities of the two kidneys, the details of which I have not time to tell you in this abstract. I also caused to be constructed the flexible steel renal sound which I show you. It is intended for purposes of diagnosis rather than of treatment, but was of service in this case, in dislodging the detritus from the pelvis of the kidney.

Encouraged by my success in this case, I conceived the idea of extending this method of treatment, to cases of pyelitis when no fistulous opening existed. Fortunately, I soon had an opportunity. Mrs. B. came under my care. She gave a history of symptoms similar to those already described. Hæmaturia formed a marked feature of the case, and had continued for 2½ years. The pelvis of the right kidney was suspected from the location of the pain to be the seat of the disease. In order to expose the right ureter, an opening was made in the bladder at a point where it pierces the vesical mucous membrane.

The name which I suggest for this new operation is kolpo-uretero-cystotomy; it is appropriate because it corresponds with the established nomenclature, and serves to distinguish the operation from kolpo-cystotomy done for cystitis, and kolpo-ureterotomy, which may be done in future.

When the orifice of the ureter was thus exposed, blood was seen exuding from it. The ureter having been made accessible, the subsequent treatment was the same as in the previous case, and the result equally fortunate. The discharge disappeared in a few weeks. The use of my utero-vesical drainage support prevented all inconvenience from incontinence of urine, and made the patient so comfortable, that haste in closing the opening was considered unnecessary. She was therefore sent home to Charleston, and instructed to return for this purpose, when she was stronger and fully restored to health.

She wrote me on August 12, the following account of her condition: "The drainage works perfectly. There is no escape of urine, except sometimes a little while lying down. I do not suffer from any irritation whatever. The instrument keeps the uterus in position. I have not suffered any pain in the kidneys. I feel better than I have for years. I have just weighed; so will acquaint you with the numbers—109 pounds, having gained 19 pounds in 3 months, (that is, since the operation) I am able to attend church services. I can either ride or walk. Neither gives me any uneasiness. My friends look at me, and speak of my improvement with astonishment."

All the complications of gravity of urinary and fæcal fistulæ having now been studied, what I have

already said, may be, in conclusion, enforced by a brief summary of certain important facts and principles, and an enumeration of the results that I believe may be secured, by the employment of the methods of treatment which I have described:

1. The importance of the complications of fistula has not been duly appreciated. They form in many cases the principal difficulty in the way of the successful performance of the operation, for the closure of the fistulous opening. In other cases, when the fistula is cured, but the complications left without treatment, they lead sooner or later to suffering or to the death of the patient. The greatest care should, therefore, be taken to discover and remove them.

2. Kolpokleisis, occlusion of the os uteri, and incarceration of the cervix in the bladder or rectum, are unjustifiable operations. They destroy the functions of the genital organs, and lead to cystitis, the formation of renal and vesical calculi, pyelitis, and other grave diseases. Moreover, they are unnecessary operations. By means of the gradual preparatory treatment of the complication, and, by the aid of my button suture, and dilating speculum, I have been able to overcome all the difficulties which have been described as indications for their performance.

3. The association of intra-vaginal drainage with dilatation of the vagina, is a great improvement. The inconvenience and evil effects of incontinence of urine are thereby lessened, and the duration of the treatment is shortened, by the more rapid healing of the incisions, and the formation of less cicatricial material in the reparative process.

4. We now possess a means of palliating the suffering due to incontinence of urine, in the small percentage of cases of fistula which are incurable by any method—even the dangerous one of kolpokleisis. I believe some form of drainage instrument may be adapted to every case, and these patients may be thus restored to the enjoyment of life, and the performance of its duties.

5. The possession of a system of drainage will widen the scope of the operations of kolpocystonomy done for cystitis, by removing the evils of incontinence of urine, now the chief objection to its performance.

6. Finally, I believe the operation, which I have called kolpo-uretero-cystotomy, followed by the exploration and treatment of the diseases of the ureter and pelvis of the kidney, has a brilliant future of usefulness before it. In the treatment of pyelitis, renal calculi and obstruction of the ureters, it will restrict within narrow limits, the operations of nephrotomy and nephrectomy.

PRACTICAL REMARKS ON THE CAUSES AND TREATMENT OF ENTERO-COLITIS IN INFANTS.

Read in Section on Diseases of Children, at the Thirty-Eighth Annual Meeting of the American Medical Association.

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Believing as I do that much of this disease is due to ignorance and negligence on the part of nurse or mother, and that the physician is largely to blame for the same, I purpose in these remarks to refer to some of the common mistakes of nurses that have come under my observation, and to speak of the correction of the same. The fatality of this disease, and its importance, the possibility of doing so much towards its prevention, are reasons enough for this paper being read. I think it is within the bounds of truth to say that two-thirds of the cases could be prevented if we had the power of making mothers do what is right, and of overcoming their ridiculous prejudices.

It is more evident that this subject of the causes should be considered when the failures are due to small things which only too many physicians consider insignificant and beneath their notice. The principal cause of entero-colitis is undoubtedly improper food, *plus* certain causes over which we have no great control. Indeed, I have never seen a case in an infant properly fed. Teething, heat, age, play their part, but are not properly causes. Is not the history of almost every case about this: "Why Doctor, the baby has always been so well—we never have had any trouble with it—it has gone to the table with us, and eaten *just what we did.* The baby had diarrhœa a few weeks ago, but has been getting better off and on until a few days ago it got very bad." This is the usual story. *Eaten just what we did* is the key to the whole story. Not satisfied with its doing well they must urge it on and take it to the table because it *seems* so hungry or some kind neighbor thinks the baby too poor or that it ought to have something to eat to strengthen it. It is perfectly astonishing to find how few mothers give a thought as to how an infant should be fed. They may be careful about its clothing, about its bath, about the temperature of the room, but know absolutely nothing when they come to its food. It is a man on a small scale, they reason, and it needs man's food on a small scale—and it usually gets it. Ask one of these mothers how they feed the baby. "Oh, I nurse it," which is just the best half of the story. Unless we are very careful in questioning we will not find out what is most important to know, that she also feeds the infant.

This is by no means so insignificant a thing that we can pass it over. We fail just because we are not careful as to just such things as these. Now this infant we speak of has breast-milk, and what else? potatoes in all human probability, or oatmeal or rice. We all know that intestinal digestion is at its minimum in infants, and although some of the starch may be digested most of it acts as an irritant and passes off undigested. By these repeated insults to intestinal digestion we finally have set up a catarrh, an entero-colitis; mild at first, but getting worse with periods of improvement, each relapse being worse and leaving the infant in a half-starved condition. I believe it is a common and great fault with physicians in neglecting to find out *exactly* what the infant has been fed on. Improper food—too much—and food too often is what causes this disease, and that this is not gone into thoroughly is why the disease is not cured. It is not usually for a lack of skill in applying drugs that physicians fail, but in dealing with the

food; an indifference or failure to understand the absolute importance of the question. Mothers must be continually watched, questioned and instructed over and over again.

What tries our skill and patience are hand-fed babies. For it is hard to get the proper food and harder still to keep the mother to one kind. The only hope is to have the full confidence of the nurse or nothing can be done. I know of no better way than to instruct them fully as to infant digestion—the value of foods—why it should have this and why not that. Mothers are continually saying: "Why don't physician's publish books on this subject?" but even with the excellent works of Jacobi, Keating and others they need the verbal instructions; they want the physician to show interest in the case. I also warn them against seductive advice of friends. They must be taught that artificial food requires careful consideration and trial before we find just what the infant needs "Line upon line—precept upon precept," over and over again must they be instructed, and not until then will you have them safely and surely in your hands. Young mothers must especially be warned against the woman who talk about what their mothers used to do. It is much easier to get ahead of these women than correct their bad advice.

The pathology of entero-colitis is simple, and all I wish to call attention to is, that the liver and stomach remain comparatively free from disease until the last. The vomiting is probably caused by the inflammation around the ileo-cæcal-valve. In the last stage passive congestion of the different organs is likely to supervene, especially of the brain and lungs.

The treatment may be considered under two heads: dietetic and medicinal.

The diet for infants should be but one thing, milk. If it is an infant that is fed on breast-milk then we are to emphasize the fact that nothing else should be given; no bread, no crackers, nothing farinaceous. Sometimes, when the diarrhœa is very severe, it will do to stop the milk in part or wholly, substituting for it beef-tea and toast-coffee. If it is hand-fed what shall it have! Last year I presented a paper before this Section on this subject, entitled "The Best Substitute for Mother's Milk." Another year's experience confirms me in this belief that it is a perfect substitute. The mixture consisted of fresh cow's milk diluted with barley-water and sweetened with sugar of milk—it is simple and easily prepared, and it is very necessary that it should be properly prepared. How shall we tell the nurse to prepare this food? First, only enough should be prepared for each time. See that the milk is not sour, and know whether it is skimmed or unskimmed. The nurse will be unable to tell whether it is sour unless she have some test paper, which you should provide for her. If acid it should be corrected with bicarbonate of soda or lime-water. Should lime-water be used do not carry the dilution too far. The barley-water is prepared by adding a pint of boiling water to two table-spoonfuls of granulated pearl-barley, and after boiling for five minutes remove and strain.

Now, the first you know the nurse will be adding no barley, or will not strain it, and boil too long. I have also had them add *half a cup* of pearl-barley instead of a table-spoonful or two, with the idea that it would make the child grow. It may be prepared as directed in Meigs' mixture, the milk sugar being added to the barley-water. When it is to be used all that is necessary is to heat the prepared barley-water and add it to the milk. The milk should not be boiled (as it has been shown that there is an indescribable, unmeasureable something lost) unless you wish medicinal effects from it. Milk sugar should always be used, and the reason given the nurse for so doing.

With this food you have a perfect substitute for mother's milk. If then the infant is not getting proper food change its food to this mixture, and then correct the catarrhal condition and flatulency with soda, bromides and some mint. During the very bad spells the diet must be entirely changed and the work taken from the irritated intestines, and thrown entirely upon the stomach by giving beef-tea and toast-coffee; ½ to 1 teaspoonful of beef-tea and toast-coffee as it calls for it. As the symptoms abate I return to the milk diet.

As for the medicinal part of the treatment, I use bicarbonate of soda, bromide of potassium and tincture of hyoscyamus. I correct the irritable and painful condition of the mucous membrane with mild counter-irritation, and then give $\frac{1}{20}$ or $\frac{1}{30}$ of a grain of aloes in a triturate every 3 hours, which acts as a tonic or by its substitutive action.

But it is in the stage of collapse that I have seen some remarkable results by giving large doses of chloral. After losing some cases of the disease when following well-known authorities, I came to the conclusion that something different must be done. Very soon I had an opportunity to try an entirely new plan. One night I was called out into the country to see a baby which was very sick with "summer complaint," and the messenger told me he did not think I would find the child alive. I found the child (7 months old) half conscious, rolling its head from side to side, which it had done for the past 24 hours, eyes but half open, head hot, pulse weak, rapid and irregular, extremities cold. It would drink half a dipper of water at a time, and it would go literally through it. The child had been sick two or three weeks, and with the usual history. I gave the child five (5) grains of chloral, which it kept down. It was asleep in 5 minutes, and I had it placed in its cradle with bottles of hot water placed to its feet and body, and cold to its head. I also had some beef-tea made immediately, and toast-coffee; the beef-tea to be given every 3 hours, a teaspoonful, and the toast-coffee whenever it wanted drink. Brandy was added to the toast-coffee. The child was made to sleep for 24 hours with chloral, and the irritability of the digestive tract was overcome by bismuth and calomel, and quinine as a tonic.

In two days it was decidedly better, and then the milk was gradually given it, with strict injunctions as to preparing it. The child made a good and rapid recovery. After this I had other cases like it and found chloral entirely satisfactory. The object in giving full doses of chloral is to get the brain entirely insensible to reflex action. These large doses may

seem risky, but small doses are not sufficient. Even in pseudo-hydrocephalus I do not think chloral is contra-indicated, as it relaxes the arterioles, thus bringing the blood to the surface.

ABSTRACT OF A PAPER ON ANTISEPTICS IN MEDICINE AND SURGERY.

Read before the Medical Society of the District of Columbia, May 4, 1887.

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It is no longer an hypothesis, but a scientific fact, clearly and unequivocally established, that certain bacteria are necessary factors in the causation of certain diseases. One question remains only debatable: Which are and which are not germ diseases? It may be debated whether the bacteria and their spores or their poisonous excreta be the actual *materies morbi;* but this is a question of secondary importance. It is of the very utmost importance to the progress of scientific medicine and surgery that the entire life history of these low organisms should be fully known, to the end that the unscientific rubbish which obscures the subject may be brushed away, and the facts of essential importance brought within reach of the profession in a clear, compact and manageable form. The first essential fact in the natural history of the group is that all these lowly forms belong to the lowest group of plants known to naturalists. Some of them cannot live in the presence of free oxygen, others need a limited supply of that gas. Organic matter, a limited supply of oxygen, water, and salts are the generally essential conditions for the reproduction, growth and development of disease-producing bacteria and micrococci. Hence the dangerous character of damp, dark and dirty places, and hence the inestimable value of scrupulous cleanness, effectual drainage and free ventilation, with free and copious supplies of light for all places of abode, and above all for hospital wards and sick-rooms. These are nature's great antiseptics, more and greater than all bichlorides and carbolic sprays. It is among the tissues of the higher organisms that the optimum of the life conditions of bacteria would be found, except for the domination of physiological energies over the whole area of their environment. Before the organic matter of living tissue can furnish pabulum for bacteria the tissue must first die in whole or in part, and the power with which bacteria are endowed to surround themselves with *toxic* excreta brings them into formidable resemblance to beasts of prey, that kill first and then devour. We see, then, how everything which tends to weaken the physiological forces of the organism, to lower the general vitality, prepares the way for a fatal assault by swarming multitudes of pathogenic bacteria.

It is for the destruction of bacteria and their spores that we use antiseptics. So long as we are dealing with refuse materials and substances outside the living body we may use disinfectants in any degree of concentration necessary to secure their efficiency; or, following the Mosaic decree, we may even burn such materials with fire. But within the living body we are met by the limitation of the power of the organism to withstand the action of efficient germicides. Man cannot withstand the toxic action of any known reliable germicide in germicidal strength. Germicidal medicine, therefore, is beyond the possibilities of the present. We cannot kill bacteria or micrococci, still less can we kill the spores, after they have gained access to the interior of the living body. Our therapeutic measures must have reference to the possibility of rendering the fluids and tissues more or less unfavorable media for the development and nutrition of pathogenic bacteria, and of strengthening and fortifying the vital resistance of the tissues. It is not possible to make of the fluids and tissues of a man's body a germicidal pickle until after the man is dead, and from the way some dissecting rooms smell, one would think not easily then.

It is much to be regretted that our knowledge of the limits of the germicidal powers of the best of the known germicides is far from being exact. The spores of these bacteria possess resisting powers against the action of the best germicides enormously greater than do the developed bacteria themselves. No two bacteria and no two of the different spores possess the same resisting power against any particular germicide. The medium in which the bacteria may have been developed, and the medium in which they are brought in contact with the germicide, influence their resisting power to a very important but as yet undetermined extent. A particular medium may increase the resisting power of one and greatly diminish that of another of these bacteria. Blood serum, being an alkaline fluid, nearly destroys the germicidal powers of iodine by converting it into iodide, whereas it tends rather to increase than to diminish those of mercuric chloride. Yet the germs themselves will be more vigorous and harder to destroy in the living body than in pure chemical solutions, in which an arrest of their nutrition may bring the germicidal powers of starvation to the aid of the drug. If, then, we have determined the degree of concentration of the solution of mercuric chloride necessary to destroy anthrax germs in chemical solutions outside the body, we are not in a position to determine the necessary strength to destroy the germs and spores of disease germs of other species within the abdominal or utero-vaginal cavities or in a superficial wound, or in any individual subject, seeing that we cannot calculate the factor of vital resistance. Temperature is a potent factor in the life conditions of these organisms, as Pasteur has beautifully shown. We do not know the optimum of temperature for septic germs. With regard to some of the most formidable disease germs Pasteur demonstrated the optimum of temperature to be 100° F., whereas 106° F. was fatal to their development within the fluids and tissues of living animals—facts which have some tendency to make us pause in our antipyretic enthusiasm.

It is frequently stated in the journals that mercuric chloride is fatal to germs and spores in strength of 1 to 20,000 or less, whereas it is safe as an antiseptic

injection or irrigant in strength of 1 to 2,000. Neither of these statements is correct. The best experimenters place the germicidal powers of mercuric chloride at from 1 to 5,000 to 1 to 6,000 for developed germs; 1 to 1,000 for spores after direct continuous exposure to full strength from ten minutes to half an hour; de la Croix found germs still to develop in meat juice at a bichloride strength of 1 to 8,000. Most of the results of this observer are confirmed by Koch. Brunton concludes that the only reliable germicide to destroy these organisms by merely brushing over the infected articles is bichloride of mercury; that is, to destroy both germs and spores, and that a bichloride solution even as weak as 1 to 1,000 seems effectual after after a *few minutes'* exposure. These statements contain the latest results of our latest observers, and the extravagant statements above alluded to cannot be derived from competent authority.

As to carbolic acid, its germicidal powers are surprisingly low. It is not reliably germicidal in media favorable to its action in less strength than 10 per cent. Carbolized oil, once so much used, is scarcely germicidal in strength of 50 per cent. Carbolized sprays are wholly worthless, and those merely scented solutions so much in vogue are equally useless. Such sprays and solutions may indeed, and often do, produce toxic effects upon operators and patients, but are innocuous to germs and spores. In view of known facts it ought to be clear to the humblest understanding that carbolic acid is useless as an antiseptic in sufficient concentration to make it a deadly poison to man. The use of dilute solutions and sprays in surgical practice is not founded in any scientific justification. It cannot prove destructive to germs or spores, and is of no other possible or conceivable use. The use of carbolic acid should be confined to the disinfection of instruments, and for this purpose its strength should be rather more than 1 to 10. The solutions of 1 to 40 in common use are entirely inefficient and worthless. The trifling quantities of carbolic acid added to all sorts of washes, ointments and prescriptions for internal and external use serve only to make the compounds disagreeable to use. Increasing the volume of such solutions to any extent does not render them germicidal, but may cause dangerous toxic effects from their indiscriminate use. No surgeon ought to suppose that he is rendering his instrument aseptic by dipping it momentarily in a 1 to 40 solution of carbolic acid. The solution, he should know if he does not, should be 1 to 10, and the exposure to its action in no case less than ten minutes. He must know that he cannot hope or expect to render an open abdominal cavity aseptic by the use of carbolic sprays or douching with faintly carbolized water, yet, if copiously applied, either the spray or solution may poison the patient fatally. Whatever criticisms apply to the use of weak and inefficient solutions of carbolic acid for antiseptic purposes, apply with equal force to the use of mercuric chloride or other antiseptics. If of less than germicidal strength there is no rational justification of their use; if of germicidal strength they are formidably dangerous. We read constantly of the use of corrosive sublimate in solution of the strength of 1 to 2,000, or even 1 to 1,000, for the irrigation of large surgical wounds, or, for example, of the utero-vaginal tract immediately after delivery. It is not denied that toxic symptoms, and death with toxic symptoms, have followed such practice in the hands of very eminent practitioners. Surely no eminence justifies a man in fatally poisoning his patients. To one dead or the surviving friends it is all one whether death came from the hands of eminence or obscurity. A solution of corrosive sublimate of the strength of gr. ss–¼ : f℥j cannot be safely employed to render aseptic any absorbing surface of considerable extent; a weaker solution, however copiously applied, while it may poison and kill the patient, cannot kill the spores nor prevent their development and reproduction as fast as the antiseptic is absorbed, flows away or is diluted and washed off by the secretion natural to the part. Consider, also, the difficulty of applying a bichloride solution, for example, to every point in the entire utero-vaginal tract, plicated, creased, folded and obstructed with clots and secretions, as is the case shortly after delivery. We could not be sure of reaching every point by injecting gallons of fluid. If I could maintain, in the face of all obstacles, a solution of 1 to 1,000 mercuric chloride at the original strength in contact with every point of that vast mucous tract, I could render it certainly aseptic. But what of the woman? Would she not be well-nigh certainly poisoned? and would not criminal responsibility attach to me? It is within my power to know that my person and my instruments are aseptic or to make them so. If I fail to do so and my patient dies as the result of my carelessness or ignorance, it is my fault.

If I describe my own methods I shall be better understood. I direct my efforts with scrupulous care to the disinfection of my instruments and person. I boil my sponges in dilute muriatic acid and keep them for some hours in a 12 to 15 per cent. solution of carbolic acid from which, just before using, I transfer them to boiling water which has been boiled for at least a half an hour. My instruments lie coverd in a similar solution for at least a half an hour, and at the moment of using them I transfer them to and pass them through boiling water. I cleanse my hands and arms with Castile soap and aseptic water, and finish by rinsing them in a bichloride solution of 1 to 1,000. I wash the external parts about the seat of operation perfectly clean, and finish the sponging with the 1 to 1,000 bichloride solution.

The operation done, I get the wound thoroughly clean with the aseptic sponges before closing it with aseptic sutures taken at the moment out of the carbolic solution and passed through the boiling water, again washing and cleansing the external parts perfectly, finishing by sponging with bichloride solution. Lastly, I apply a pad of absorbent cotton covering the wound completely and making a complete septic screen, which I secure in place, if small, by court-plaster, if large, by bandages in addition, as may seem necessary. I leave the primary dressing in place until I find some reason for removing it, often until the sutures are to be removed, and often then the

cotton is scarcely soiled or stained, and the wound healed by first intention. If the carbolic and bichloride solutions are excepted the remaining method is the same I used as a military surgeon during the latter two-thirds of the war and ever since. I dressed all my wounds, surgical and others, with dry lint removed as infrequently as possible, and with infinite advantage over the cold water dressing then in vogue and all greasy and unctuous applications frequently renewed. Now I know that I was using a perfect aseptic screen, for scientists and investigators use the cotton plug to secure the contents of their flasks and tubes from the access of atmospheric germs. It prevents absolutely the access of germs to the aseptic preparations in the flasks and tubes, and it will and does keep them off the surface of wounds. It is plain that every time an aseptic dressing is unnecessarily removed from an aseptic wound, it is a useless exposure to the danger of septic infection and an unnecessary disturbance of nature's reparative work.

One thing more I deem of the utmost importance in the aseptic precautions necessary in surgical and obstetrical practice, is to limit the number of persons present to those positively necessary to render assistance. No surgeon has a right to subject any person to operation in the presence of persons who may have come from questionable sanitary surroundings to the operating room, unless in cases of accident or emergency when the surroundings are not within his control. As an *argumentum ad hominem* I put it interrogatively, has any surgeon a right to wear for merely ornamental purposes profuse locks of comely hair, or an immense shaggy, pendant beard? A man may, of course, carry this sort of precaution to whimsical and foolish extremes, but scarcely, if he is a man of sound scientific culture and natural good sense.

I am not willing to close this paper without distinctly reaffirming my dissent from the opinion of those who hold that we may safely irrigate large absorbing surfaces with bichloride solutions of the strength of 1 to 2,000, or ¼ of a grain to the ounce. It is, in my opinion, speaking as an experienced toxicologist, extremely hazardous to attempt to render the utero-vaginal tract after delivery aseptic by the use of so formidable a solution. I have known deaths after such washings-out with ominous symptoms; deaths which I firmly believe to have been caused by those washings-out; and further, I believe there were no valid indications demanding or justifying resort to those washings-out. Relying upon personal experience I believe that such proceedings are neither necessary nor useful if the lying-in has been conducted in the light of modern science. I have practiced medicine 27 years, and during a large part of that time have been extensively engaged in obstetric practice. I have never washed out, and intend never to wash out the vagina of a recently delivered woman except with warm water for the removal of the débris of an embryotomy. I have never left a woman from my first case to my last, inclusive, until every particle of soiled clothing was removed from the bed and person, the external genitals thoroughly cleansed and a clean napkin properly applied, and in the fact that I have never yet seen a case of septicæmia in my own practice I realize the justification of my practice.

The best Listerian lecture I ever heard was delivered by the late Professor Charles D. Meigs in 1859, when I was a student at the Jefferson Medical College. It was on the conduct of a labor. Preliminary to the lecture the janitor brought in a conspicuous array of soap, water, and clean towels. Then followed the Professor, and he was received, as he always was, with hearty applause. First bowing right and left in acknowledgment he pulled off his coat, removed his cuffs, rolled his shirt sleeves up and, soaping his hands and arms above the elbows, washed them, and then rinsed them in clean water, and finally dried them carefully and, taking a bottle of cologne, applied some of it freely to his hands. Then turning to the class he said slowly: "In the conduct of every labor the first essential thing demanded alike by safety and decency is to wash your hands. Wash your hands first! Wash them clean! Wash them always; don't forget it. How are you to tell; how am I to know that my servant who handles my reins hasn't got the gonorrhœa?" Many regarded all that as excessive mannerism and affectation. It was the very best kind of teaching. I have known and heard very many public teachers, some good, some bad, some indifferent, some very few great ones; the greatest of all was Professor Meigs. That typical hand washing has been throughout my professional life a guiding star.

SOME OF THE CAUSES OF NON-SUPPURATIVE DISEASES OF THE MIDDLE EAR, AND SOME OF THE BEST METHODS OF REMOVING THEM.

Read before the Chicago Medical Society, August, 1887.

BY GEO. W. WEBSTER, M.D.,
OF CHICAGO.

That the nose, throat and ears are closely related anatomically, physiologically and pathologically is a fact that needs no demonstration at my hands. But, that most of the non-suppurative inflammations of the middle ear originate in the diseases of the nasal and post-nasal region is as trite a fact, but not as generally recognized by most practitioners. And even many aurists have yet to learn that the way to most successfully treat many of these non-suppurative diseases of the middle ear and the resulting loss of hearing, is by a thorough, skilful treatment of the diseases of the nose and throat. I know of few other conditions, in this line of practice, in which the results of surgical interference and treatment are more apparent and gratifying to both physician and patient, notwithstanding the fact that a well-known author, in a recent work on diseases of the ear, says that the time spent in making a rhinoscopic examination is time lost.

If an excuse for this paper be needed, it is found in the fact, as I have just stated, that all authors do not agree with me in the above statements, and also

that their truth, together with the utility of proper treatment such as I shall attempt to point out, is not always recognized, and, especially in our public institutions, does not receive the attention merited by the importance of the subject. If I am right in my statements, it behooves us to recognize all the causes, direct or indirect, exciting or predisposing, that we may be able to treat them intelligently and in accordance with the modern ideas of pathology, and also to remove those causes capable of removal.

Some of the principal recognized causes of non-suppurative disease of the middle ear are about as follows: Hypertrophies, of whatever nature, including hypertrophies of the turbinated bodies, pharyngeal tonsil, faucial tonsils, hypertrophic rhinitis, adenoid vegetations of the vault of the pharynx, exostoses and deviated and deflected septum, polypi, fibroid growths or any condition of the nose or throat that prevents free nasal respiration; also measles, diphtheria, typhoid fever, scarlet fever, indigestion, pregnancy, improper clothing, wet feet, bad hygienic surroundings; in short, any or all conditions which tend to induce and maintain congestion and inflammation of mucous membranes.

The first principle in treatment should be to lessen the congestion and inflammation, and where they have terminated in hypertrophies, remove them. The consideration of all these causes and conditions, and the treatment of each, would be material sufficient for many papers, and I will therefore confine my remarks to some of the first mentioned causes, viz.: those which interfere with free nasal respiration, beginning with hypertrophy of the turbinated bodies.

In this condition we may have either a hypertrophy of the anterior end, the middle, the posterior end, or a general thickening of the entire turbinated body, and oftentimes a thickened, hypertrophied condition of the mucous and submucous tissues lining the entire post-nasal space. In diagnosticating these conditions it is, of course, essential that we have a good light, a large head mirror or reflector, tongue depressor, small throat mirrors, nasal speculum, a fair knowledge of the normal appearance of the parts to be examined, the requisite skill and patience to make the examination, and a reasonably tolerant patient.

For a tongue depressor I much prefer the modified "Tuerck" instrument, as it has a metal core for strength, is covered with hard rubber and does not corrode, is easily cleansed, and the short handle allows the little finger to rest in the hook at the end, giving a firm hold and a better control of the patient's head. I much prefer a small rhinoscopic mirror except in very tolerant patients with very roomy throats. In a small percentage of cases a palate hook will be of service, and is best tolerated if it be flat and wide. I notice, however, that the more skill I acquire in making examinations the less frequently I make use of the palate hook.

Hypertrophic rhinitis causes deafness by the hypertrophy extending to the mouths of the Eustachian tubes, causing a thickening of the lining of the same either at the orifice or entire length of the tube; this tending to prevent entrance of air to the middle ear, and the air becoming absorbed, we have then the atmospheric pressure on the external surface of the drum head, tinnitus aurium, vertigo, sometimes adhesive inflammation, anchylosis of the ossicles, and variable degrees of deafness. Then again, hypertrophy may, and often does, interfere with nasal respiration, and cause deafness, as follows:

With every inspiration and act of swallowing we have, as Lucae has shown, a tendency to create a vacuum in the post-nasal space, with a consequent congestion which must sooner or later result in thickening and hypertrophy of the mouths of the tubes, and then all the other phenomena just pointed out, with, in many cases, a total loss of the hearing power.

Again we have, as has been shown by Weber Leil, of Berlin, a paralysis or partial paralysis of the palato tubal muscles, and this also tends to prevent the entrance of air to the middle ear in the normal manner. Just how this paralysis is caused is not quite clear to my mind. This condition can be easily diagnosticated as follows: Adjust the catheter and attempt to inflate in the usual manner, and air fails to enter the middle ear. Then direct the patient to phonate or swallow. At certain movements of the palato tubal muscles the air enters suddenly, and again we fail completely, although we know "the catheter is in the proper position in the mouth of the tube" This Weber Leil explains by saying that the muscles have suddenly dragged open the mouth of the tube, and then as suddenly allowed it to close again. I find that in these and many other cases I can inflate easily by pouring 2 or 3 drops of chloroform in the bulb of the ordinary Politzer apparatus. This bulb I have had made of metal, as the rubber is soon destroyed by the chloroform.

Again, I believe that the sympathetic system plays an important part in all these cases of catarrhal inflammation by its action on the blood-vessels; but just what or how I do not know.

Having examined our patient and finding him deaf, and then finding hypertrophy of the turbinated bodies and nasal stenosis, it is of paramount importance that we first restore free nasal respiration. And how can this be best and most easily accomplished? Some authors use either chromic acid, nitric acid or acetic acid; others use tents, dilators, etc.; others the cold snare of Jarvis, and others again give preference to the galvano-cautery in some of its various forms, and this is my preference for all cases of hypertrophy of the turbinated bodies, as I believe it possesses advantages over any and all other methods at our command.

The acids cannot be as well limited in action or confined to the exact points requiring their action, and cannot be made, in many cases, to burn deeply enough without burning laterally as well, and thus destroying too much of the Schneiderian membrane; and we cannot judge of the depth of the burn nor stop it when it goes deep enough; although I do not deny that good results have been obtained in some cases by the use of acids.

Tents and dilators are little used now, and deservedly so, as they are, when used alone, of little service. The Jarvis snare is as difficult to apply as the hot snare, is as painful, and requires sometimes sev-

eral hours for the removal of a growth after it has been firmly grasped by the loop; and there is, even then, much liability to hæmorrhage.

The galvano-cautery is easily managed, is convenient, its action can be limited, the degree, depth and width of the burn controlled, it is no more painful than the cold snare, and does, in a few seconds, the work that takes an hour or two with the cold snare, and does not give the same liability to hæmorrhage.

The first point which I wish to emphasize is that if the growth is large enough to require removal, it can usually be removed with comparative ease with the galvano-cautery loop, and if it cannot be grasped by the loop without the aid of pins, etc., it is not large enough to require entire removal and can then be cauterized, preferably with some form of "moxa" electrode. In those large growths having a peculiar cauliflower appearance, anything less than complete removal is of very little value. If, then, we find that we have a growth large enough to require removal, we apply a 10 per cent. solution of cocaine to the growth. For this purpose I employ a syringe with a long fistula tip, and then a bit of cotton wound on the tip. Then with the aid of the milled nut we can eject a drop at a time, and this can be readily and conveniently applied only where desired.

Having the loop ready, it is passed carefully back and over the growth, when, if careful measurements have been made, the growth can be easily engaged in the loop. However, if we fail, we can sometimes adjust it by the aid of the rhinoscopic mirror. By directing the patient to depress the tongue with the depressor we can hold the mirror with the left while we adjust the loop with the right hand. This procedure is not always necessary, as I have frequently removed these growths without ever having seen them until after their removal, and having judged of their presence by the symptoms. In these cases do not tie the palate forward, as it is very unpleasant and quite painful to the patient, is of little or no advantage to the operator except in rare cases, and is a barbarous procedure.

Having adjusted the loop, it can be rolled in on the windlass with the thumb while we close the circuit with the index finger, and in a few seconds the growth is removed, as it usually adheres to the loop as it is withdrawn from the nose. Very little hæmorrhage is likely to follow.

If the growth be too small to require entire removal, and is smooth in appearance, I use either the "moxa" or the pointed electrode. This is thrust into or through the growth and then the current made, and we thus destroy the submucous and vascular tissue with as little loss of the membrane as possible.

In a third class of cases there is symmetrical hypertrophy of the entire turbinated body. In these cases I have obtained the best results by a narrow deep burn extending the entire length of the turbinated body, and almost or quite to the bone. Sometimes more than one line of cautery is necessary. By this method the cicatrix resulting anchors the membrane firmly to the bone and prevents its puffing up, and at the same time cuts or burns through the enlarged blood-vessels and thus destroys them.

Any of these operations, and especially the last, is followed by considerable reaction and inflammation for about 4 or 5 days.

In some cases the anterior ends of the turbinated bodies are enlarged to such an extent as to require removal. It can best be done with the galvano-cautery loop. I always use the platinum wire for my loops.

Perhaps a word about the after-treatment of these cases may not be out of place. Twice each day the parts are thoroughly cleansed by the patient, using for this a hand atomizer with a modified Dobell spray, always warmed to about the temperature of the body or warmer. Every second day I see the patient and cleanse thoroughly with the spray and post-nasal syringe, and then apply soothing applications of vaseline or some vapor with the inhaler. When the more acute symptoms have disappeared I apply cocaine to one side, and then apply a mixture of equal parts of tr. iodine comp. and eucalyptol, or solution of nitrate of silver, to the entire post-nasal space. I also apply the iodine and eucalyptol to the turbinated bodies in the same way, as well as to the mouths of the tubes when they are thickened. Then the ears are thoroughly inflated, and if the mouths of the tubes are much thickened, I have derived some benefit from the alterative action of the negative pole with the galvanic current, the electrode being placed in the mouth of the tube, and always using a milli-ampère-meter to exactly measure the strength of the current.

If there be paralysis of the palate tubal muscles, the Faradic current applied in the same manner is of advantage.

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MEDICAL PROGRESS.

THE ACTION OF CERTAIN DRUGS ON THE CIRCULATION AND SECRETION OF THE KIDNEY.—In the Section on Therapeutics of the IXth International Medical Congress, DR. CHARLES D. F. PHILIPS, of London, read a paper on this subject. It contained a number of very interesting experiments, made with Roy's onkometer, with caffein, spartein, strophanthin, digitalin and ulexin.[1] He concluded that the flow of urine is not so much dependent on the blood-pressure as on the rate of flow of the blood in the renal vessels. With regard to this point, it is necessary to remember that, although such drugs as strophanthin produce a great increase in the *force* of the cardiac beats, yet these are very much slowed, so that it is quite possible that although the heart's action is stronger, yet the total amount of blood sent through any given organ, such as the kidney, in a given time, may remain the same. Whereas such a drug as digitalis, producing as it does a rise of blood-pressure and a contraction of the kidney-vessels, may cause an increased quantity of blood to pass through the renal vessels. On this view one

[1] Ulexin is an alkaloid from the gorse, *Ulex europæus*.

could find the explanation of digitalin being a diuretic, and strophanthin not being one.

Inasmuch, however, as spartein has not so marked diuretic action, we must also assume that digitalin must have some peripheral action on the secretory apparatus of the kidney.

His results were tabulated briefly as follows, in three divisions:

A. Drugs that first contract, and afterward dilate the kidney.

1. *Caffein*—in small doses—induces in the stage of contraction a fall of blood-pressure—in that of expansion, a slight rise. During the former, the flow of urine *may* be arrested; during the latter it is always increased, such increase depending on dilatation of renal vessels.

(The possible *arrest* of secretion during the first stage is special to caffein, and may be induced by large or repeated doses.)

2. *Ulexin*—gr. ⅙—greatly raises blood-pressure during the first stage (that of contraction); in the second, expansion is much greater in degree but shorter in duration than under caffein, and is accompanied by brief but marked increase in urinary flow; the effective dose is limited by its toxic action on respiratory centres. Practically, *excess* of caffein induces only the first stage—*excess* of ulexin only the second.

B. Substances that dilate the kidney, but to less extent and more slowly than caffein and ulexin, are dextrose, urea, sodium chloride, and acetate, and probably all constituents of the urine.

C. Drugs that contract the kidney without subsequent expansion.

1. Digitalin, with *increased* secretion of urine (probably resulting from general heightened blood-pressure).

2. Spartein, with *diminished* secretion (in health at least).

3. Strophanthin causes slight temporary contraction, with no marked increase of secretion.

4. Apocynëin, similar temporary contraction, and no definite increase of secretion.

5. Turpentine; 6, adonidin; and 7, barium chloride give similar results.

In conclusion, it seemed to him that the plethysmographic method of experimentation is a valuable one for determining the exact action of drugs on the circulation, and one that deserves more attention than it has hitherto attracted.—*Medical Record*, Sept. 10, 1887.

NEW METHOD OF TREATING DISEASES OF THE SKIN LOCALLY.—In the IXth International Medical Congress DR. VALENTINE KNAGGS read a paper on this subject. He proposed as a substitute for ointments the employment of emulsions which upon drying on the skin form protective films. He had employed these dressings for the past two years with gratifying results in eczemas and other non-specific exudations. The inunction of the body with fixed oils has been found of immense service, but they are not adhesive, and exuding fluids readily escape from the surface. There are two methods of rendering oily substances adhesive: 1. By adding to them resinous, gummy, or alkaline substances. 2. In making use of gums to combine or emulsify a fat with water.

Adhesive preparations, unlike oils, tend to arrest skin-action. Thus tar, varnish, or collodion form an impervious covering. Ointments to which adhesive substances are added diminish skin-action, but do not abolish it.

Well-made emulsions resemble milk or cream, are soluble in watery fluids, and are markedly adhesive, and are made by combining an ointment-basis with water, a vegetable gum, and a suitable antiseptic.

Thus the formula preferred would read:

℞. Paraffine molle ..... ℥j.
Pulv. gum acac ..... gr. 160.
Boracic acid ..... gr. 16.
Aquæ ..... ad ℥ij.
Stir until emulsified.

Bismuth, zinc, sulphur, or other medicament may be added as desired. Smeared over the skin, a film is formed, which is flexible and protective, and the antiseptics and medicaments have the best opportunity of exercising a beneficial influence.

The author called especial attention to the fact that all lint and textile dressings could be dispensed with. He did not expect these gum emulsions to displace older methods, but that they would serve a useful purpose.

DR. UNNA said that we were now in the period of transition, making our annual change of treatment. It was very well for us as specialists to discuss new treatments, but we should not give them to the general practitioner until we were quite sure that they were good, and especially should not confuse him with new treatments until we were quite sure that they were new. He had worked much with fixed dressings and varnishes, and some years ago had described such a varnish as had the reader of the paper. He was glad to confirm the reader's claim regarding the utility of the emulsion-dressing, but could not concede to him that it was new, as there are many other varnishes made with gums and fats. He did not believe that any varnish which is soluble in water can prevent a great amount of evaporation from the skin.—*Medical Record*, Sept. 10, 1887.

VAGINAL EXTIRPATION OF THE UTERUS AND OVARIOTOMY.—A very interesting account of this double operation is furnished by DR. ROBERT ASCH, Assistant Physician to the Breslau Clinic. The operation was performed by Prof. Fritsch. The patient, a woman of 42 years, was found to be suffering from carcinoma of the cervix, the history of which extended over a period of 5 months. A further examination revealed the presence of an abdominal tumor about as large as a man's head. To render the diagnosis clearer the patient was anæsthetized and the tumor was found to be either an ovarian cyst or a subserous myoma. It was decided to first extirpate the uterus and then remove the tumor by a laparotomy.

Before beginning the operation the vagina was thoroughly douched with a sublimate solution 1-2000.

The peritoneum being reached it was found that the tumor had no connection with the uterus but that it was a cyst of the parovarium, as evidenced by the discovery of the enlarged left ovary, which was in relation with the pedicle of the tumor. The uterus was removed without especial difficulty and a provisional iodoform tampon introduced. The laparotomy was next undertaken. When the peritoneum was reached it was observed to bulge forward and when incised air escaped, which had evidently found entrance to the cavity through the vaginal opening. After removing the cyst and closing the abdominal incision the pedicle was drawn down and stitched to the vaginal wall. The operation lasted 1¾ hours, and upon its conclusion the temperature and pulse were found to be very satisfactory. The patient progressed well and after 8 days the sutures were removed and primary union was found to have taken place. The vaginal tampon was removed and the vagina syringed out with a 2.5 per cent. carbolic solution. On the day after the removal of the sutures the patient felt so well that in spite of frequent admonitions she sat up repeatedly and as a result the abdominal wound opened. The assistant physician being sent for found the wound open throughout its entire extent. Fifteen knuckles of small intestine, together with the transverse color and a portion of the omentum had escaped. These were returned to the peritoneal cavity. After most careful cleansing the wound was closed by 12 deep and as many superficial sutures. The patient had considerable fever at first but the temperature fell on the fourth day and did not again rise above normal. The patient soon convalesced. Throughout the entire management of the case the strictest antisepsis was enforced. Alcoholic stimulants including beer are freely used in the Breslau Clinic, together with coffee. —*Centralbl. für Gynäk.*, No. 27, 1887.

Lithium Carbonate and Sodium Arseniate in Carbonic Acid Water in Diabetes.—Martineau recommends the following preparation: Into an apparatus such as is commonly used in Paris for extemporaneously making carbonic acid water, are put twenty centigrammes of lithium carbonate and a tablespoonful of a solution of twenty centigrammes of sodium arseniate in 500 grams of distilled water. The quantity of carbonic acid water used is about one litre. This quantity is to be drunk by the patient during each day, either by itself or mixed with ordinary wine at meals.

The simplicity of this remedy led Dr. Austin Flint to test its efficacy in certain cases of obstinate diabetes which he had under treatment. The ten cases reported led Dr. Flint to the following conclusions:

1. In the three severe cases in which the solution of lithium carbonate and sodium arseniate in carbonic acid water were used, no very marked effects were observed in the few weeks during which the remedy was employed; but the treatment seems to be worthy of more extended trial, and it may be useful in mitigating the severity of a strict antidiabetic diet.

2. The so-called specifics for diabetes have little if any effect. An exception, however, may be made in favor of the arsenite of bromine, which has sometimes seemed to control, to a slight extent, the thirst, polyuria, and discharge of sugar.

3. The main reliance in treatment is to be placed upon an antidiabetic diet. This has fallen somewhat into disrepute because it is seldom efficiently carried out. In no single instance, out of 99 recorded cases, did Dr. Flint find that the antidiabetic diet had been enforced.

4. Milk should be absolutely interdicted. Its influence over the progress of the disease is prompt, powerful, and most injurious.

5. There are certain cases in which dietetic treatment promptly arrests the disease and keeps it under control. There are other cases in which treatment seems to be of little avail, except in possibly retarding the progress towards a fatal result. Of the ten cases reported, and now under observation, seven are amenable to treatment and three are obstinate.

6. A confirmed diabetic may be cured, in the sense that all symptoms will disappear; but the disease is liable to return at any time under an unrestricted diet. Still, moderate care in diet will often secure immunity.

7. A patient who has once had diabetes should have his urine examined every few weeks. The glycosuria always precedes the general symptoms of the disease, and these general symptoms can generally be forestalled by proper treatment employed as soon as sugar makes its appearance in the urine.

8. As the disease returns, either from imprudences in diet or from other causes, the successive recurrences present greater and greater difficulties in the way of treatment.—*Therapeutic Gazette*, Aug., 1887.

Urinary Fistulæ.—J. Höhlmann reports the results of 35 cases of urinary fistula operated on in the Breslau clinic for women. In 27 of these cases the fistulæ were produced by pressure of the fœtal head in patients with contracted pelves. In 2 cases the pelvis was normal, but hydrocephalus was present. In 5 cases they were the result of obstetrical operations. Two cases were caused by operations for vaginal myomata. One was caused by a calculus.

Constipation was observed as a very constant symptom, the writer believes by the intimate relations existing between the innervation of the sphincters of the rectum and bladder. The voluntary attempt to prevent the discharge of the urine results in an involuntary impulse given to the sphincter ani. Menstrual disturbances were frequently noticed. Fistula was *not* observed to occur more frequently on the left side. The formation of fistulæ was found to be favored by the simple flat form of the pelvis as well as by the flat form with narrowing of all the diameters.

Preparatory treatment consisted in 2 or 3 sitz baths daily in a 2 per cent. solution of carbolic acid, together with disinfecting vaginal douches given in the recumbent posture. Dilatation by Bozeman's method was not adopted. Excessive tension on the vaginal walls was relieved when necessary by counter-inci-

sions. Silkworm-gut and silk were used for suturing. 29 cases recovered, 6 remained unhealed. In one case in which the fistula involved the ureter and vagina nephrectomy was performed and the patient recovered.—*Centralbl. für Gynäkol.*, No. 33, 1887.

THE REMOVAL OF SMALL OVARIAN TUMORS.—KÜSTNER, of Jena, contrasts the difficulties attending the removal of small ovarian tumors with those which accompany the operations for the larger ones.

1. The opening of the peritoneum is more difficult because the walls are not stretched. The linea alba is harder to find because the recti muscles are not separated. The incising of the supra-peritoneal fatty tissues is easier when there is a large tumor beneath.

2. In small tumors the small intestines nearly always escape when the peritoneum is opened, a difficulty which seldom occurs in the case of large tumors, and then, as a rule, only when adhesions are present. The prolapsed intestines obstruct the incision, and reposition is often an extremely difficult and tedious matter. The hyperæmia which takes place in the prolapsed intestines leads to dysentery.

3. The small size of the incision increases the difficulties of all manipulations.

4. The pedicles of the smaller tumors are shorter.

In spite of these difficulties the writer counsels operation as soon as the tumor can be recognized, preferring to operate thus early rather than wait, as advised by Knowsley Thornton in 1884, until threatening symptoms appear or until the tumor has reached the level of the navel. Another argument in favor of early operations is that benignant ovarian tumors may become malignant. On the other hand, it is often very uncertain whether a small tumor may not be carcinomatous or sarcomatous.—*Centralbl. für Gynäkol.*, No. 27, 1887.

COCAINE ANÆSTHESIA.—WÖLFLER says that local anæsthesia can be always produced by the injection *into*, not under, the skin of a 5 per cent. solution of cocaine. This is also true for the inflamed skin, though the injection should not be made, as in cases of panaritia, in the inflamed region, but in healthy skin, and the needle only carried to the inflamed region. In neuralgic conditions Wölfler has had very different results; in sciatica relief is only temporary, and in trigeminal neuralgias none at all. He has seldom seen symptoms of cocaine intoxication, and for this amyl nitrite is the antidote.

SCHUSTLER reports about 80 cases of cocaine anæsthesia for operations on tumors, herniotomies, circumcision, disarticulation of toes and fingers, etc. He uses a 10 per cent. solution, and lays stress upon the point that the injection should not be made under but *into* the skin, which should be rendered as bloodless as possible. He especially recommends cocaine in such short operations as evulsion of nails, slitting fissure of the anus, rectum, etc. In urological operations he has had but few experiences in Dittel's clinic thus far. In a case of amputation of the leg, cutting through the soft parts was painless, but lifting the periosteum and sawing the bone were very painful, though the limb had been rendered bloodless.

FRÄNKEL says that cocaine has no reciprocal but only a local action, but that very weak solutions, 1 per cent., are sufficient, and should be injected in as many places as possible. He has used it in tumor extirpations.—*Centralbl. für Chirurgie*, No. 20, 1887.

VESICO-UTERINE FISTULA; NEW METHOD OF CYSTO-PLASTY.—FOLET recently reported to the Société de Chirurgie of Paris the following operation: Under anæsthesia the urethra was dilated until the index finger could be introduced into the bladder and the fistula felt. Then an assistant drew the uterus to the vulva by means of toothed forceps, the mucous membrane of the portio was cut around on the anterior wall, and now separated, in the same way as in the first act of vaginal extirpation of the uterus, the wall of the bladder from the uterus on the side of the fistula. The finger in the bladder served to control the vesical wall during this part of the operation, and pressed it down to the vulva. The fistula was now accessible, and was sutured with catgut, the uterus replaced, and the vagina tamponed with iodoform gauze. Recovery followed promptly and without the slightest trouble.

Folet believes that this procedure—drawing down the uterus and pushing the vesical wall into the vulva with the finger in the bladder—may be useful not only in utero-vesical but also in high-lying vesical fistulæ, in which the freshening and suturing is difficult.

In the discussion Verneuil said that in most cases of cervico-vesical fistulæ we can freshen and suture *in situ* by lateral splitting of the cervical canal. In this way a large number of these fistulæ have been healed.—*Centralbl. für Chirurgie*, No. 24, 1887.

THE DURABILITY OF SUBLIMATE SOLUTIONS.—PROFESSOR VICTOR MEYER, of Göttingen, has recently examined a question raised by Angerer, of Munich, that sublimate solutions in ordinary water, undistilled, may be made permanent by adding to the water an amount of common salt equal to the weight of the corrosive sublimate. Were this the case of course it would be a matter of great importance in military surgery and in emergencies. Angerer prepared tablets of definite amounts of sublimate and salt, which seemed to form as durable and as antiseptic solutions as those prepared with distilled water. At the request of König Meyer made a number of experiments, which are detailed in *Centralblatt für Chirurgie*, No. 24, 1887. He used solutions of 1:1,000, as Angerer directed. These were made partly with distilled water, and others with ordinary water. The solutions were kept more than a month. The results of the experiments show that with the precipitate, there is no doubt that salt has any considerable preservative action on the solutions in open or loosely closed vessels.

VOLKMANN'S ANTISEPTIC LIQUID is composed of thymol, 1 part; alcohol, 10 parts; glycerin, 20 parts; water, 100 parts. It is a useful formula for antisepsis by thymol.—*Deutsche-Amerikanische Apotheker-Zeitung*, June 15, 1887.

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PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, OCTOBER 8, 1887.

BACTERIOLOGY AND ITS RELATION TO SCIENTIFIC PROGRESS IN MEDICINE.

The admirable address of PROFESSOR SEMMOLA, of Naples, to the Ninth International Congress, September 7, 1887, aims *first* to remind us of the true method of advancing scientific medicine; *second*, to show the fallacies and unproved assumptions of the prevailing bacteriological doctrines; and *third*, to more clearly develop the fact, that a study of the conditions of the living system favorable for the reception and propagation of microörganisms is of equal, if not greater importance than the study of the individual microbes. In regard to the first he says: "We affirm, then, that the experimental method in medicine has for its purpose, the determination of the phenomena of nature and their causes. The experimental method admits no individual dogmatic authority, nor has it anything in common with the theories of hypothetical methods The individual loses his personal authority in comparison with the teachings of demonstrated science." Again he says: "The problem assigned to medicine is very simple, to determine the conditions of vital existence and its phenomena in healthy and diseased organisms," and he asks: "Which are the phenomena that the physician studies? The answer is the functional disturbance or symptoms of sickness. What are the physical and chemical conditions of these phenomena?—The natural causes of sickness." And in all our studies he urges with much earnestness the necessity of rigidly adhering to observed facts and more complete investigations, instead of using isolated facts as the basis of most important pathological and therapeutic deductions; and saying truly that, "isolated facts are an idle and dangerous luxury, and in medicine, the isolated and scattered riches cannot produce by themselves useful progress in clinical study."

Under the second head he attributes the fallacies or hasty assumptions of the bacteriologists, to a departure from the true and more complete experimental method of research to which we have just alluded. Thus he says: "For more than ten years microbiology instead of advancing with measured and secure steps, pretends to become, itself, pathology. It was a true whirlwind, enveloping all, and, at the side of precious discoveries like that of the bacillus of anthrax, of tuberculosis, and some others which are an honor to science, came forth from every part microscopical researches on the existence of new microbes in all diseases, and every sickness seems to have its true germ, destined, perhaps, to die before being registered." And he adds: "Pathology has come to be proclaimed almost the same as bacteriology." In relation to the third division of the address we have space only for the following brief quotations: "I have shown how bacteriology has exceeded its proper limits, and I now desire to call your attention to its detrimental influence upon pathology. The true part played by bacteria in pathology is the production by them of certain noxious and decomposed elements of the blood, which substances, and not the bacteria, are the potent factors in the causation of disease. The treatment of the physical and chemical constitution and conditions of the blood is a much more fruitful field for study and investigation than a direct attack by germicides upon the bacteria. The human body in health is a laboratory in which are constantly conducted chemical activities of the most complicated nature, and this is doubly true in disease. The action of the pharmacopœia may be best explained by the effect of the medicinal agents upon the chemical composition of the elements of the body." Again he says: "The great facts of clinical observation transmitted through centuries, are the precious basis of modern medical science. It is the duty of the physician, at present, to apply to those great stores of knowledge the clear light of the chemistry and physics of the present; and thus to deduce rules of action for the investigation of new facts and new truths which arise in the clinical observations of to-day. In such a manner only can we hope worthily to contribute through an extended period of time, to the solid structure of truly scientific medicine."

THE PERILS OF CIVILIZATION.

To say that the people of civilized countries are daily subjected to dangers that the savage knows not of is but to state what almost amounts to a truism. It is equally evident that those who travel and those who live in cities are subjected to more perils, and oftener, than dwellers in the country. It is true that the savage incurs dangers that but seldom or never threaten civilized people, and he has no means of combating them except by his own prudence, will or strength. The chief dangers of civilization, however, are not always, or in the greater number of cases, to be avoided by prudence, skill or strength of any one man. They may be compared to a large army, and must be met as such by an army.

Of the numerous dangers to life and limb which are the accompaniments of civilization and improvements, the greatest danger is from the railway train. This is a danger which has been reduced to a minimum in Europe, where railways are the property of the various governments, as a rule. From the populous condition of the countries of Europe it has been possible to, in all cases, build railways with double tracks, without wooden trestles, never crossing a public highway or another railway on the same level, and with the roadways fenced in and furnished with numerous track-walkers. Long distances and the sparsely settled condition of our country have rendered these things most inconvenient and in many cases impossible in this country. Single tracks, grade crossings, wooden bridges, trestles and culverts, and heating by stoves, cause in this country not less than 4,500 or 5,000 deaths a year, and very probably the number of deaths is in excess of these figures. To this must be added the fact that for each person killed at least five are injured, temporarily or permanently. There can, therefore, be no wonder that the Section on Public and International Hygiene of the Ninth International Medical Congress adopted the following:

WHEREAS, The whole community has been repeatedly shocked by the almost daily occurrence of terrible accidents on many of our railroads, causing considerable loss of life, and by habitual neglect of most elementary sanitary laws;

WHEREAS, As this Section considers itself in a degree the guardian of public health; be it

Resolved, That the attention of this Ninth International Medical Congress be respectfully called to this most important question, and it be requested to use its influence to obtain the necessary reforms.

How can these accidents be prevented, and what part can medical men take towards their diminution and prevention? They can only be prevented or greatly diminished by the making and enforcement of laws in the several States, by which severe penalties may be inflicted on railway officers and employés for carelessness, and which will compel all railway companies to be more careful in the construction of their tracks, in all the particulars mentioned. In Germany, when a person is injured or killed by a railway accident, some one is almost sure to suffer for it. The value of human limbs and life is too much disregarded in America. We have recently had an example of this in Illinois, in which more than one hundred people were crushed to death, and many more injured, in the most frightful accident in the history of railroads. And what has been done to make railway officials more careful in the future? The men chiefly responsible for the accident, which was caused by, it may be said, wilful negligence, are free and unindicted, while the coroner and his jury, those mockeries of civilization and intelligent examination, have endeavored to cast the blame on a poor laboring man, not responsible for the accident. Over and over again has it been the case that high railway officials have compelled railway employés to testify falsely concerning the causes of fatal accidents by threats of discharge. Of the many railways centering in Chicago every one comes in on a level with the streets, some running for miles through the city. In very many cases there are no gates at street-crossings, and no watchmen.

In a previous issue of THE JOURNAL we have spoken of the injuries in railway accidents in winter from fires caused by the stoves in common use, and from the objectionable and dangerous methods of heating railway cars; and we think it has been shown that these things can be easily obviated.

There are many other causes of injuries in large cities especially. City health officers, while engaged in hunting up cases of infectious and preventable diseases, and nuisances of filth, run a constant risk, especially in Chicago, of breaking a leg by stepping into a defect in a sidewalk, of losing an eye by a chip of stone from a stone-cutter's chisel, or by a cinder from a passing locomotive or tug-boat, or having an eye removed by the rib of an umbrella in the hands of a careless woman. Our heads are often endangered by workmen who fail to place sufficient scaffolding around a building in course of erection. Employés in high dark buildings are in constant danger from dark stairways, open freight elevator shafts, and the lack of fire-escapes in case of fire. "Buddensieck" buildings continue to be erected. All these things will continue until the law makes negligence and carelessness a crime.

Since the profession is interesting itself and the public more and more every year in regard to preventable diseases, let us extend our interest to preventable accidents. Little, perhaps, can be accomplished in six months or a year, but in time the labor will be rewarded. Much can undoubtedly be accomplished by earnest and persistent efforts on the part of boards of health, even though a few silly newspaper writers declaim against "the curtailment of our liberties." The liberty to maim and kill should be curtailed.

A CURE OF CHRONIC RHEUMATISM.

"Cure of a case of chronic rheumatism of thirty-six years' standing," says MR. CHARLES MAY, in the *Lancet*, of August 27, 1887, sounds so like a sensational heading of an account of the marvelous effects of some patent medicine that one almost hesitates to enter on a subject having such a basis. But Mr. May records a case, and one which is certainly interesting. Four years ago he was called to see a maiden lady, aged 60 years, who had discovered that her right nipple was deeply retracted, so as to be quite level with the surface. In addition to the cancer of the nipple he found that the lady had suffered for many years with rheumatism, which all treatment had failed to relieve. The history of the case was that thirty-three years previous to his visit, during very hot summer weather the patient sat between the open door and a window while in a state of profuse perspiration. A severe attack of acute rheumatism followed, from which it took her three months to recover. It is not known whether there were any heart complications at the time, but at the time of the visit the sounds were normal. The joints were very painful and swollen, which condition never entirely subsided. A less violent but sharp attack came on eight years afterwards, and again four and two years before Mr. May saw her. The last was more confined to the lumbar region, and very severe. "During the whole of the long period named she cannot remember having been entirely free from pain. Going up and down stairs (especially the former) was attended with pain and difficulty, and could not be accomplished without the help of the baluster, the process being very slow, step by step. Out-door exercise, except for a short distance leaning on an attendant, was impracticable. Any attempt to walk alone immediately produced giddiness and a staggering gait, and if not supported she would fall to the ground. A sharp pain was frequently experienced at the top of the sternum, which increased on any attempt to swallow, causing a choking sensation; consequently all fluids were taken by sips." There was no history of gout or rheumatism in the family, but a sister died of cancer.

Mr. May does not give a minute account of the treatment, which extended over a considerable time, but merely gives a general statement of the medicines given, and the gradual progress up to recovery. From a general view of the case, the invasion and long-continued possession of the system by the rheumatic virus and the mammary glandular disturbance, he was led to select medicines having a specific action on the parts, and a depurative action. He therefore began with the iodide and bromide of potassium, gr. v of each, in compound decoction of sarsaparilla and decoction of buchu and broom. To this was added gr. iij of extract of conium night and morning, in deference to its influence on chronic rheumatism and glandular enlargements. This treatment was continued for one year, simarouba and aromatic spirits of ammonia being occasionally substituted for the potassium and conium. At the end of the year the swelling at the joints had subsided, and the patient was relieved of the heretofore constant pain. She could also move about the house without the assistance needed before, though not freely, but she still could not take out-door exercise without assistance, and the giddiness continued. The iodide was now discontinued, and the bromide and conium omitted every other week for three months, and every third week for the next three months, and finishing the year with simarouba. "At the end of this time she had regained fair powers of locomotion, and could move about the house freely, going up and down stairs without help, and could take a short walk without support, but did not feel confident without a companion. Six months after this there was no vestige of rheumatism, joints natural, pain quite gone. Even that in the chest, which had interfered with her swallowing fluids except by small sips, was no longer experienced, the power of swallowing being natural. Sleep was continuous from soon after retiring until the time for rising, a contrast to the pain and restlessness of former times. The general health is now excellent. To use her own expression, she 'scarcely knows herself,' for whereas during the whole thirty odd years she does not remember having been free from pain, she is now entirely free from it; and whereas she had been unable to move about the house or go out without assistance, she can go out by herself, and has walked four miles without a rest. On a recent occasion she was in the park, when, looking round to see that no curious eyes were watching her,

she said to a relative who was with her—'Don't laugh, I am going to run,' which she did."

The case recorded by Mr. May must certainly be looked upon as very remarkable; and not the least remarkable points about it are, that a patient was ound who would follow directions for so long a time in a case so apparently hopeless, and that the drugs given could be continued for so long a time without producing other than the desired effects. Only twice was it necessary to discontinue the iodide on account of the catarrhal symptoms. Conium was discontinued for a short time on three occasions, not from evidence of toxic action but because it was thought prudent to discontinue it. The case further shows that if we would produce good results by drugs in such cases it must be by long and continuous administration.

SUPRAVAGINAL AMPUTATION OF THE GRAVID UTERUS FOR MYOMATA.

The first supravaginal amputation of the gravid uterus for myoma, on a basis of definite indications, was done by Kaltenbach on March 2, 1880. The case was that of a woman, 32 years old, who had aborted once. An abdominal tumor was found which reached almost to the navel. Later, when the tumor had reached the region of the stomach, the patient was examined under an anæsthetic, and was found to be in the 4th or 5th month of pregnancy. Many small fibromata were found, and on the left side a fibrous tumor with a broad base, which was larger than the uterus. Supravaginal amputation was performed with satisfactory results, the tumor weighing 3,350 grams, and showing on its interior several spots of softening. According to Kaltenbach the operation has since been performed 9 times since then, with 3 fatal results. His second case was that of a woman 33 years old, who had aborted once, there being a history of severe hæmorrhage extending over 4 years. A fibromyoma as large as a child's head was found in the interior of the uterus. Three years later the tumor had so increased as to render an operation necessary, and when removed the tumor was found to be as large as a gravid uterus at the 8th month. The stump was treated *extra peritoneum*, and a 50 per cent. solution of chloride of zinc used. Softening of the interior of the tumor had taken place. The patient made a good recovery.

VOGEL has operated 11 times, and he contributes a paper on the subject in a recent number of the *Centralblatt für Gynäkologie*. According to Kaltenbach and Vandrin the maternal mortality after this operation thus far is 50 per cent. But in the 11 cases reported by Vogel the mortality was only 27.3 per cent. The oldest method of treatment is that of inducing abortion or premature labor, with the idea of relieving the crowding of the abdominal viscera, and giving the tumor time for retrograde metamorphosis. Vogel discards this method, however, on account of the dangers of hæmorrhage and infection. The operative measures are myomotomy and supravaginal amputation. By the first the woman is relieved of the tumor, and the child is given a chance for life. This operation can be performed in cases of subserous and interstitial myomata by enucleation. In cases of multiple myomata of the uterus attended with rapid growth or dangerous symptoms (threatening life) supravaginal amputation alone is to be considered.

SOCIETY PROCEEDINGS.

CHICAGO GYNÆCOLOGICAL SOCIETY.

Regular Meeting, Friday, April 15, 1887.

THE PRESIDENT, CHAS. WARRINGTON EARLE, M.D., IN THE CHAIR.

(*Concluded from page 444.*)

ANTISEPSIS IN ABDOMINAL OPERATIONS; SYNOPSIS OF A SERIES OF BACTERIOLOGICAL STUDIES.

The Preparation of the Sponges, Silk, Instruments, Gauze and Water.—The sponges were those prepared by Schorse, of Milwaukee. The silk was boiled an hour in a 5 per cent. carbolic acid solution, and in some cases afterwards immersed in a solution of iodoform and ether and again sterilized by moist heat in a bottle stopped with cotton. This was done by placing the bottle in a pail containing an inch of water and boiling for an hour. The instruments were boiled an hour in a 5 per cent. carbolic solution on the day before the operation and then dried. On the morning of the operation they were again boiled for a few minutes in a similar solution and placed in trays of sterilized water for use.

The water was sterilized by boiling in large tin cans, each holding 2 or 3 gallons, for an hour or more on three successive days. The cans had tin covers, put on over a rim of cotton to stop the crack between itself and the can.

The culture medium used for these investigations was sterilized, alkaline, peptonized beef-tea gelatin. Most bacteria will grow in this medium at the temperature of a living-room. Answers have been sought through these investigations to the following questions:

1.—Are the sponges sterile when rinsed out and ready for use?—Pieces of each of the sponges to be used were cut off by the assistant who had the care

of them and put into the gelatin with sterilized forceps. Three or four pieces were put in a single tube. In this tube you see three such pieces surrounded and permeated by the transparent nutrient gelatin. Out of twenty-five sponges from seven operations only a single sponge was found infected with a single colony. Through attempted cultures from these prepared sponges and silk, answers to the following questions have been sought:

2.—*Are the sponges sterile when ready for use?*—After the sponges had been rinsed out in sterilized water three times, the assistant cut off small pieces from each of the sponges to be used with scissors, and they were put in a tube of liquefied gelatin beef broth. This tube contains three such pieces of sponge surrounded by the clear solid gelatins. Out of twenty-five sponges from seven operations only a single sponge was found infected with a single colony.

It appears that the sponges are sterile at the beginning of the operations, and if sterile then of course aseptic. Five or six pieces of silk were usually taken from as many needles, and an inch cut off from each and put in a single tube of gelatin. More than thirty such pieces were examined from nine operations, and not a single colony developed. In no case was the silk infected at the beginning of the operation.

3.—*Is the catgut sterile? (Schorse's carbolized catgut.)*—Several pieces at four operations were examined. In one case only did any colonies develop. In this tube you see two pieces of catgut at the bottom of the clear gelatin. Clinging to the side of one piece you can discover a small spherical white colony, and a little distance from it in the gelatin another similar colony. This catgut was from a new bottle of catgut used in operation 5, in a private house in the country. It is difficult to say how significant their presence is. They might arise from any one of the following causes:

1. Imperfect primary sterilization of the catgut.
2. Infection by floating germ or germs from the hands of the assistant when unwinding and cutting off pieces.
3. Infection through transportation to and from the country.
4. Imperfect sterilization of the nutrient medium.

It is my own opinion that it is from infection through the second of the above named causes.

Thus out of over thirty tubes containing over sixty pieces of material taken before the operations, only *two* pieces were found infected with *three* colonies. This would indicate that the precautions taken are very successful at the beginning of the operation.

4.—*Are sponges sterile after they have been used?*—At the end of each operation small pieces of each of the sponges used were cut of and placed in gelatin in the same manner as at the beginning. They were usually stained with blood, and sometimes had pieces of the contents of the cysts clinging to them. Thirty pieces from eight operations were thus examined. In the tube which contains two pieces of sponge from the last operation, No. 8, are numerous colonies on the side of the upper sponge. They are spherical and whitish, and do not liquefy the gelatin. The following is the list of the sponges infected:

Operation 1; 5 sponges examined; 1 infected.
Operation 2; 2 sponges examined; 1 infected.
Operation 5; 4 sponges examined; 1 infected.
Operation 8; 2 sponges examined; 1 infected.

The sponges were generally sterile at the close of the operation, even though most of them had come in contact with the skin of the abdomen and the contents of the cysts.

It may seem strange that the sponges used in operation 4, pyo-salpinx, in which the cyst burst into the abdomen, in tearing it away from its adhesions, did not develop any colonies. Five sponges were examined, and all remained apparently sterile. From the pus in this cyst (cultures) were made in solid blood serum with the growth of a small micrococcus usually in the so-called diplococcus form, but this microbe would not grow in gelatin beef tea.

5.—*Is the silk sterile at the close of the operation and after it has been used as sutures?*—Out of twenty pieces of silk, often cut from the ends of abdominal sutures, only a single piece was infected with a single coccus form, viz.: one of the two pieces taken from operation 1. Over fifty pieces of material, after being used in operations, and only five pieces—four sponges and one piece of silk—were found infected. It does seem, therefore, that the sponges and silk may be maintained sterile, so far as any germs that will grow in nutrient gelatin are concerned, even to the end of a long operation.

In marked contrast to these results appear those from an operation performed by another operator who kindly allowed similar examinations. The details of the preparations were given for publication. The operating room was well washed with soap and water, both walls and floor. It was in a new house which had never contained a sick person. The sponges were part new and part old, having been used in a previous abdominal section. After that operation they had been soaked a day in a strong solution of bicarbonate of soda, and washed out in a 5 per cent. solution of carbolic acid and hung away in a bag. On the day before the operation all the sponges were boiled in a porcelain kettle for more than an hour in a 2½ per cent. solution of carbolic acid, and put into a jar and taken to the operating room. The silk was boiled and carried in the same jar. The operator took a bath and put on perfectly clean clothes on the morning of the operation. The assistants were instructed to do the same. The hands and arms of the assistants were washed in soap and water and then in a sublimate solution 1–1000.

The material examined consisted of four sponges and two pieces of silk before the operation, after the sponges were rinsed out, and the needles threaded, and of two sponges after the operation and several inches of the thread used. All the material was infected except one piece of silk examined at the beginning of the operation. Every sponge had at least one colony of the hay bacillus, and one sponge after use showed more than fifty small white colors in the clear gelatin in the upper part of the tube.

What influence the asepsis of the material has on the results of the operations as to death or recovery

is a question far beyond the scope of these investigations. It would require a large statistical material of well observed cases, and more work than could be done by one observer. But it may be safe to conclude that it is desirable to work through an abdominal operation with perfect asepsis everywhere, if such a thing is possible. The above investigations have shown that such perfect asepsis can be attained. Thus if we are ignorant of the extent of danger from non-sterile material, we are hardly justified in trusting to the innocence or inocuousness of such an uncertainty, while we can have the asepsis of the material an absolute guaranty against the dangers of infection.

Operations performed by Dr. Christian Fenger:

1. Dermoid of ovary. Emergency Hospital, November 9, 1886. Bursting of cyst into the abdomen during operation; irrigation; 1 sponge and 1 piece of silk infected after operation; 4 tubes used to examine 12 pieces of material. Recovery. Development of properitoneal abscess, which was opened in the sixth week. Complete recovery.

2. Cysto-sarcoma of left ovary. Emergency Hospital, November 30, 1886. Solid movable tumor 6 inches in diameter, only slightly adherent to abdominal organs; metastasis in peritoneum; some ascites present. Drainage; 6 tubes used to examine 11 pieces of material; 1 sponge before use and 1 sponge after use infected, each with a single colony. Recovery.

3. Radical operation for hernia. Emergency Hospital, January 18, 1887. Eight tubes used to examine silk and sponges and catgut; all sterile. Recovery.

4. Pyo-salpinx. Emergency Hospital, January 19, 1887. The sac, adhering on all sides, ruptured in removal. Irrigation of abdomen; 14 tubes of nutrient gelatin used; all sterile. *Contents of cyst planted in solid human blood. Serum developed diplococci of very small size, which do not grow in gelatin*, probably gonococci. Death from acute sepsis within 48 hours.

5. Double dermoid. Private house, January 24, 1887. The tumor of the left side had ruptured 20 years before, and produced an almost fatal peritonitis. (?) This tumor was now large and adherent all around. The tumor on the right side was small and free; 9 tubes used with 25 pieces of material; 1 piece of catgut infected with 2 colonies; 1 sponge infected with a single colony. Death from shock within 12 hours.

6. Cyst of ovary. Emergency Hospital, February 3, 1887. Seven tubes used to examine 10 pieces of material; all sterile. Recovery.

7. Cyst of ovary. Emergency Hospital, March 22, 1887. Two tubes used to examine silk and sponges after operation only; all sterile. Recovery.

8. Malignant cyst of broad ligament. County Hospital, March, 1887. Four tubes used; all sterile. Death from uræmia on the fifth day. Autopsy. Atrophic and dilated kidneys.

9. Proliferating cystoma of ovary. Emergency Hospital, March 24, 1887. Large and adherent; burst during removal. Irrigation of abdomen to remove cyst contents. Drainage; 5 tubes used, 12 pieces of material; only 1 sponge infected with numerous colonies. Death after 36 hours. Autopsy after 6 hours. Thrombosis of right ventricle. Bloody serum found in the peritoneal cavity in small quantity was added to nutrient gelatin. It remained sterile after 2 weeks' incubation.

Contrasted case performed by another surgeon in which less successful antiseptic precautions were used.

Cysto-sarcoma of ovary. Private house, February 22, 1887. Very large, and adherent to omentum and abdominal wall. Drainage by means of 2 rubber drainage-tubes; 9 tubes used for silk, and sponges all infected except one, containing silk, before the operation. The sponges, after use, contained many 50–100 colonies. Each of the 8 infected tubes had at least one colony of the hay bacillus. Death on the third day. No autopsy. At each daily dressing there was evidence of some oozing from the drainage-tubes.

DR. CHARLES CALDWELL read a paper on

ENLARGED THYROID OR GOITRE, A CAUSE OF TRANSVERSE PRESENTATION.

June 1, 1884, Mr. G. summoned me to attend his wife. On the way to the house he informed me that she was in labor; that a midwife was in attendance and had been for 24 hours; that his wife did not seem to be making any headway, but was becoming weak and exhausted, and the midwife was frightened, not knowing what was the cause of the delay or what to do. Her condition upon my entrance was truly frightful. She was in the midst of a labor pain, pulling the midwife's hands, straining every muscle, her whole face cyanotic, and her eyes protruding as if they would escape from their sockets. Exhausted she fell back, gasping for breath. It required but a single glance to perceive that death threatened this poor woman from two sources, *i. e.*, asphyxia and rupture of the uterus. Bimanual examination revealed the fœtus in a transverse presentation. The os was fully dilated and the membranes had ruptured. The mother had not felt the movements of the fœtus for several hours and its heart sounds could not be heard. Podalic version was performed without delay, by Braxton-Hicks' method. The feet were brought down, and during the next labor pain the second stage was completed. The third stage consumed but a few minutes and the uterus contracted well. The fœtus was large, but showed no signs of life. The heart's action had probably ceased several hours before. After visiting my patient for three succeeding days, during which time her pulse and temperature remained normal, I saw no more of her, but her husband, whom I met the following week, informed me that she got up the fourth day and attended to her usual household duties.

October 16, 1885, I was called a second time to attend Mrs. G. in labor, and as in the first instance, she had called a midwife, also as before, she had been under her tender care, or rather at her tender mercy, for 24 hours. Again the fœtus was in a transverse presentation with the right arm and prolapsed cord protruding from the vulvar orifice, for the membranes had ruptured. The cord was pulseless. The hand and arm were easily pushed up over the face

and above the brim of the pelvis. By combined manipulation, with the right hand in the vagina and the left over the abdomen, cephalic version was performed. The head was brought down into the first position and held there until by a strong labor pain it became engaged, when forceps were applied at the superior strait and the fœtus extracted during the next pain. This fœtus was an unusually large one, and I regret it was never weighed. Dr. Jaggard, who utilized it for the cause of obstetric science, says it must have weighed nearly or quite 20 lbs. Her puerperium was normal as before, which means she left her bed the fourth day.

February 18, 1887, Mr. G., for the third, and I hope the last time, summoned me and said his wife needed my services again; that this time they had decided not to call a midwife first, but to send for me at once and give me a better opportunity to save the child's life. Examination revealed a third case of transverse presentation. Os was fully dilated, but membranes unruptured. Through the membrane, by vagina, could be felt both the feet and hands. The head was to the right and breech to the left. Fœtus was in dorso posterior position. The placenta could be easily felt through the abdominal walls, and was attached to the anterior wall of the uterus, near the fundus. By external manipulation, I attempted to perform cephalic version before the membranes ruptured. The amniotic fluid was small in quantity, and I failed. Deciding upon podalic version, the membranes were ruptured, and a fœtus weighing 12 pounds was delivered in a few minutes, but not without considerable muscular exertion on the mother's part as well as on my own.

As I brought down the feet with the right hand and pushed up the head with the left, the abdomen of the fœtus rotated anteriorly. As soon as the body was delivered, I clasped the thorax of the fœtus with the left hand to prevent inspiration and asphyxia. The arms were then brought down, and with the assistance of the nurse, who raised the child's body up over the mother's abdomen, I seized the fœtus by the occiput and delivered the after-coming head without forceps. The child gasped a few times, and then began to cry, to the delight of its mother. Placenta was soon expelled and the uterus contracted firmly and well. Puerperium as in the two preceding cases.

This patient was born at Königsburg, Germany, in 1852; was married in 1873, and is the mother of ten children. The oldest four were born in Germany —the others in America during the last nine years. Her first seven confinements were normal and she was attended by a midwife. Seven years ago the left lobe of the thyroid gland began to enlarge during gestation, but caused neither pain nor dyspnœa. Three years ago, during her eighth pregancy, the right lobe began to enlarge, and increased in size very rapidly, producing both pain and dypsnœa, compelling her to take a semi-recumbent position at night instead of a horizontal one. During the last three months of gestation she sat bolstered up in bed at night. This posture, which she was obliged to take whenever she sat down, during the day as well as the night, produced a continued pressure on the fundus of the uterus, changing its long axis from a vertical to an oblique or transverse direction. Of course, the long axis of the fœtus must coincide with that of the uterus, and the continued pressure on the breech or head, according to the end of the fœtal ovoid at the fundus, would force it into an oblique or transverse position, and also throw the lower end of the fœtus out of the pelvis and above its brim. The same position of the mother is maintained during labor as during the last three months of pregnancy, hence the fœtus remains in the same oblique or transverse position, and the lower end of the fœtal ovoid cannot descend below the pelvic brim.

It seems to me the above facts explain perfectly why the fœtus has been found in a transverse position, the three last confinements, and never at a previous one.

In examining the obstetrical treatises at my command, I find no mention of enlarged thyroid as a cause of this presentation, but that it certainly is in this case I have not the least shadow of a doubt. The causes usually given are: Immature fœtus, contraction of pelvic brim, laxity of uterine muscles, excessive liquor amnii, twin pregnancies, etc., all of which can be excluded in this case. The case has been quite interesting to me, for it is rare in my obstetric practice to meet with cases of transverse presentation, and I have *never* before seen it occur three times in succession in the same patient. I saw my patient last week, and find by measurement of the tumor at the largest point, that it has diminished more than an inch in its circumference in seven weeks, and that she can now sleep in bed with two pillows under head. Dyspnœa is not alarming until the seventh month of pregnancy, but fron that time until confinement it is excessive. This is hardly the place to discuss what mode of procedure should be followed in her case for her relief; and yet, as she is but 35 years old, it is very probable that she may become pregnant again, and possibly lose her life, if nothing is done to remove or at least reduce the size of the tumor, until it shall cease to be a source of such alarming dyspnœa.

I should be glad to hear the opinions of any of the Fellows who have had experience with this class of glandular tumors. From my own experience I should not be in favor of total extirpation, for I once saw a woman cross the river before the operation was completed. Ligation of the superior and inferior thyroid arteries, partial resection, injections or electrolysis seem to offer better results, and are certainly much less dangerous.

Dr. D. T. Nelson: I have had one patient that this case reminds me of, in which not shoulder or other irregular presentation was the cause of difficult labor, but a high promontory (and it seems to me with the experience I have had with abnormal presentations that a high promontory is a very common cause of mal-position), complicated by an enlarged thyroid, not to the extreme extent of the case reported, but such as to give the patient a great deal of inconvenience in the last months of pregnancy, and especially at the time of delivery. I have delivered her with instruments several times. The treat-

ment I have adopted in her case for the enlarged thyroid, and with seeming benefit, has been the free use of ergot in the intervals between pregnancies. The gland will diminish greatly in size, at least in the intervals between pregnancies, as the pressure is taken off the circulation. When she followed the treatment with some degree of faithfulness (she would not use the remedy with persistency), it seems to me that in two periods, when she did fairly well, continuing it for about two months, there was a more marked improvement than at any other time. I would suggest this to the Doctor, as I know of nothing else that is more likely to serve him, before he decides upon a surgical operation. In the acute enlargement of the thyroid, occurring in both sexes at puberty, though most frequently in the female, I have given ergot with excellent results, continuing it several months.

DR. C. T. PARKES: I would suggest as to the treatment of this thyroid gland, that among the many methods I have seen adopted, the injection of a 5 per cent. solution of carbolic acid sometimes brings about a very rapid improvement, and decrease of the enlarged gland. An injection with a hypodermic syringe once or twice a week is not followed by any unpleasant reaction.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

Stated Meeting, May 11, 1887.

DR. F. L. KNIGHT, CHAIRMAN.

ALBERT N. BLODGETT, M.D., SECRETARY.

DR. F. W. STUART read a paper entitled

CAN CIRRHOSIS FOLLOW TRAUMA? A MEDICO-LEGAL QUESTION.

October 3, 1885, during the service of Dr. E. O. Otis, J. B., aged 10 years, came to the Carney Hospital. His family history was good. He had always been well up to 1882, when he had an abscess on the left side of his neck which suppurated for two years, and resulted in contraction of the left side of the neck. He had visited the Carney Hospital in June, 1885, when the following note was made: "Patient listless, loss of appetite, diarrhœa three days; contraction of sterno-mastoid on the left side due to an old abscess, tenderness over the site of the old gland and in the region of the pneumogastric." The patient complained only of swelling of his abdomen. He was very irritable, and cried so much that it was impossible to make a careful physical examination, though it was evident that there was fluid in the peritoneal cavity, fluctuation being well marked. He was given syrup ferri iodidi, and told to return the next day for a careful examination. The patient returned Monday, October 5, Drs. E. O. Otis, W. H. Devine and myself being present. We were now told that on the previous Tuesday the patient had been kicked by a schoolmate, and that the disease dated from the day of the assault. A careful history was now taken, and a thorough physical examination made. The patient's mother stated that he had always been well up to the time of the assault, with the exception of the abscess and the attack of indigestion mentioned before. She said that he was nervous and irritable, but attributed this to the fact that the boys of his age were constantly irritating him on account of his wry neck. Otherwise he was a strong, healthy and cheerful boy. On Tuesday, September 29, while playing in the street he became involved in a disturbance with a schoolmate, and, though an exact story of the quarrel could not be obtained, it was established that the patient had been knocked down, and while lying on his back had been stamped upon, the heel of the assailant striking him in the abdomen. The patient spat up some blood, walked into his house not far away, complained some of pain, but the next day was able to attend school. On the Saturday following, his mother first noticed that his abdomen was swollen; and brought him to the hospital.

Physical examination showed the patient to be well developed for a boy 10 years old, but he was decidedly pale and cachectic in appearance. His temperature was normal, and his pulse and respiration were but little hurried. Heart and lungs were normal. His abdomen was much enlarged and fluctuating. On percussion there was dulness everywhere, with some areas of flatness, and the percussion note was unaffected by a change in the patient's position. The urine was high colored, specific gravity 1021, albumen 1/8 per cent., and the sediment contained some renal epitheleum, urates and a few casts. The existence of an exudation, was of course, very evident, and a diagnosis of chronic peritonitis was easily made, but at the same time it was felt that there must be something underlying the peritonitis. In attempting to diagnosticate the disease more accurately, some differences of opinion were developed, though it was considered to be very probable that the case was one of tubercular peritonitis. The absence of any tubercular trouble in any of his relatives, as well as the absence of any pulmonary signs in the patient tended to negative this view.

In a few days the distension became more marked, the genitals were very œdematous, and the breathing became embarrassed. On October 16, the abdomen was aspirated, and about two quarts of a clear serous fluid were drawn off, it being impossible to aspirate more than a small part of the exudation, owing to its being sacculated. At the same time the genitals were punctured with a needle and the fluid allowed to trickle away. During this time the patient bled very frequently from his gums. Under symptomatic treatment the effusion largely disappeared, and the patient was able to attend school again. This improved condition lasted for some time, after which the fluid began to reaccumulate, and a scrotal hernia was developed on the left side.

Again there was improvement, and in May, 1886, the patient returned to the hospital to see if something could not be done for his neck. Examination

at that time showed still evidences of the exudation, and the borders of the liver and of the spleen were undeterminable.

July 3, the boy who assaulted our patient was tried in the police court on the charge of having committed a felonious assault, and I was the only medical witness summoned. The facts were testified to as stated above, though the testimony also unintentionally drew out the information that the patient had for months been subject to bleeding from his mouth. I was asked whether in my opinion the kick received caused the patient's disease. I answered that I thought that the injury did not cause the existing trouble in the sense of starting it up, *de novo*, though I admitted that possibly it might have hastened a previously existing disease.

My conclusion was based on the following considerations. It did not seem to me that the injury had started up an acute peritonitis, because the patient was not very sick, that is, he had not been confined to his bed, he had no marked fever, and had not complained much of pain. Furthermore, it seemed to me that so large an effusion thrown out in four days would have perceptibly embarrassed his respiration and quickened his pulse. Therefore it seemed to me that the assault merely served to call attention to a previously existing condition, which it at most had aggravated.

The question then asked was: Could the hernia be due to a weakening of the abdominal walls at the point of the injury induced by the kick? I thought not, and attributed the hernia to simple distension of the abdomen by the fluid.

Finally, I was asked if the spitting up of blood was not proof that the kick had caused some internal injury. I answered decidedly, no. The patient may have received a blow on the mouth, may have bitten his tongue in falling, and in any event this symptom could have but little weight in determining the force of a blow in one who so often before had "bleeding from his mouth." The defendant was, however, bound over to the Superior Court, and a hearing before the grand jury resulted in the finding of a true bill.

July 25, Dr. Devine was called to see the patient, and afterwards Dr. Otis saw the case with him. The patient then had great distension of the abdomen and general œdema. Tapping was advised, but not consented to by the parents.

August 4, the patient complained of great pain in his abdomen, his pulse was rapid, temperature high, and the general constitutional disturbance great. Dr. Devine, who was then attending the patient, attributed these symptoms to an acute exacerbation of the peritonitis. The patient died August 6, and an autopsy was made by Dr. F. W. Draper, Medical Examiner, at 2:45 P.M. of the same day. Drs. Devine and myself being witnesses. Dr. Draper has very kindly sent me the notes of the case, which were as follows:

Autopsy by Dr. F. W. Draper, Medical Examiner, at 2:45 P.M., August 6, 1886. Body very pale; a little livid discoloration of dependent parts. Rigor mortis absent. No appearances of decomposition. General anasarca—œdema of face, arms, hands, thorax, abdomen, genitals, legs and feet. Abdomen distended with fluid; fluctuation well-marked. Scrotum large and red. At the left inguinal ring, there was an opening sufficiently large to admit the index finger easily.

Internal Examination.—The peritoneal cavity contained 172 fluid ounces of clean, thin, serous fluid. The heart was normal. The lungs were œdematous and injected in their lower and posterior portions. The spleen was enlarged to four times its normal volume; it was softened and its section presented limited areas of diffuse hæmorrhage infiltration. The kidneys were moderately enlarged, pale, with normal relations between the cortical and medullary portions; their capsules were free. The liver was reduced to the size of a man's fist; it was of very dense consistency, light yellow color, with thick interstitial partitions between the lobules, and a great number of small nodules upon its surface. The intestines and apposing surfaces of the abdominal organs were firmly adherent at numerous points by strong bands representing a former inflammation of the peritoneum; and layers of soft lymph at various situations indicated more recent peritonitis. The peritoneum was thickened and opaque. There was no purulent exudation. The peritoneum and mesentery were œdematous, and the dependent parts of the intestinal folds showed limited patches of hæmorrhagic infiltration. The stomach and intestines presented nothing remarkable upon internal examination. The mesenteric glands were normal. The brain was soft and œdematous.

Diagnosis.—Chronic interstitial hepatitis; chronic hyperplasia of the spleen; chronic adhesive peritonitis; ascitis and general anasarca.

Cirrhosis of the liver is so rare a disease in childhood that many of the books specially devoted to children's diseases make no mention of it. Still, in a very hasty review of the literature on the subject, limited to the usual reference books, I find quite a number of recorded cases.

F. Weber[1] and Virchow[2] report congenital cases, Wettergreen[3] reports a case at four; Cayley[4] and West[5] each one at six; Loeschner[1] one at seven; Hauerwas[1] and Wilks[6] each one at eight; Murchison,[4] Freriche[7] and Griffith[4] each one at ten; Maggianni[1] one at eleven; Steffen[1] two cases, one eleven the other thirteen, and Wunderlich[8] observed two cases in sisters, aged eleven and twelve years respectively. None of these are recent cases, since I did not have time to consult the recent journals.

It is generally admitted that the excessive use of alcohol is the usual cause of cirrhosis, but various others have been given. Flint mentions syphilis, chronic malarial poisoning, chronic phosphorus poisoning, chronic peritonitis, and occlusion of the bile duct as causes to which cirrhosis is often assigned,

[1] Ziemssen's Encyclopædia.
[2] Archiv. fur Path. Anat. Band xxii, S. 426.
[3] Quoted by London Medical Record, 1881, p. 117.
[4] Trans. London Path. Society, vol. 27, 1876.
[5] St. Bartholomew's Reports, 1887.
[6] Guy's Hospital Reports, 1875.
[7] Quoted by Pepper.
[8] Quoted by Niemeyer.

though he would doubt the efficiency of them. The excessive use of condiments and extension of a perihepatitis have also been charged with producing cirrhosis, while Griffith in the report of his case, alluded to chronic abscess as if it were a recognized cause of this disease. Of the cases cited, Wunderlich, Murchison and West (the latter a patient, a girl of 8, being in the habit of drinking a half pint of gin daily) were able to prove that their patients had used alcohol to excess. Wettergreen and West attributed their cases to the excessive use of coffee. The writings of Virchow and the reports of the Italian physicians would lead one to believe that syphilis and chronic malarial poisoning may cause cirrhosis, but in the main one is almost forced to look upon this disease as a specific disease with its specific cause—alcohol. The reader has notes of a case of cirrhosis seen in Professor Bamberger's ward in Vienna. The patient, a girl 11 years old, gave a history of intermittent fever, and to this her disease was attributed. But long after she had been admitted to the hospital it was ascertained that her father kept a "Brantwein-Geschäft," thus making it, after all, more than probable that her trouble was due to alcohol, since in the family of such a man brandy was likely to be looked upon as a panacea for all our ills. It must, however, be admitted that careful questioning fails to establish an alcoholic habit.

What caused the cirrhosis of the liver in our patient? Did the trauma cause it? There was no history of the abuse of alcohol, there was no question of syphilis, since parents, and brothers and sisters were all healthy and free from any signs of this disease, and the patient had never had intermittent fever. If the injury caused the disease, it first started up a chronic peritonitis, and secondarily to this came the cirrhosis. That such a thing is possible has been suggested, but I think it hardly probable, and in this case I feel that in June, 1885, when the patient was listless, etc., and a diagnosis of indigestion was made, he had beginning cirrhosis.

This would coincide with the opinion arrived at from his physical condition when I first saw him, that his disease dated back weeks at least. According to Griffith, the chronic abscess may have caused it, but I failed to see the report of any case tending to support such a view. In conclusion, let me say that I believe it wiser to admit our ignorance of the cause involved in a case so puzzling, as this, than to refer it to so hypothetical a cause—as a chronic abscess.

DR. A. N. BLODGETT said that the insidious character of the disease in the present case, its great gravity, and its fatal termination forcibly reminded him of a case seen at a distance from Boston, in which a somewhat similar and equally unusual course of phenomena were noticed. The patient was a literary gentleman, well known to many members of this Society, who while in the enjoyment of his ordinary good health, was surprised to find that he was becoming weak, and particularly that he was troubled by shortness of breath on making any exertion, sometimes experiencing almost the condition of asphyxia. After a time he sought medical advice, but was able to give absolutely no satisfactory history of the character of his disease. Physical examination revealed the fact that the left side of the thorax was the seat of an extensive pleuritic effusion, the liquid reaching to the level of the sixth rib in the nipple line. Twenty-four hours later, the fluid had increased to such a degree, that there was constant oppression in breathing, and the level had risen to the fifth rib in the axillary line. The case was diagnosticated according to the rational and physical signs, as acute pleurisy, but was considered peculiar from the entire absence of any of the ordinary symptoms of this disease. The case passed into the hands of a very distinguished practitioner, who treated the patient by the constant exhibition of alkalies, and frequent and abundant catharsis, without, however, any attempt to relieve the distension of the pleura by aspiration or puncture, and the patient rapidly sank, and died at the end of four days. The autopsy showed the conditions diagnosticated during life to have been correct.

DR. HAROLD WILLIAMS asked if the autopsy of Dr. Stuart's case showed any signs of the chronic abscess from which the boy had suffered some years before?

DR. STUART said that there was no internal evidence of any lesion referable to the abscess, no trace of which was found. Griffith, however, mentions this as one of the causes of cirrhotic disease of the liver.

DR. WILLIAMS remarked that in answer to the question "Was the injury the cause of the cirrhosis?" it was conceivable to suppose that the kick might have been the cause of the chronic peritonitis and that the adhesions resulting therefrom might have acted as a cause of the cirrhosis by constricting the blood-vessels of the liver. Dr. Williams asked if the adhesions noticed in this case were found to cause such interference.

DR. STUART replied that this was not the case: That it had been discussed at the autopsy, but that while many adhesions were found, none were in such position as to warrant such a conclusion.

(*To be, concluded.*)

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Stated Meeting, May 4, 1887.

THE PRESIDENT, JOS. TABER JOHNSON, M.D., IN THE CHAIR.

(*Concluded from page 442.*)

DR. M. G. ELLZEY read a paper entitled:

ANTISEPTICS IN MEDICINE AND SURGERY.

(See page 459.)

DR. A. F. A. KING was very much interested in the subject and had accepted the opinions of the great surgeons. As Dr. Ellzey had antagonized these beliefs, he (Dr. K.) would like to know if Dr. Ellzey could prove his statements by demonstrations or experiments.

DR. ELLZEY had not formed his opinions from experiments, but from tables showing the value of the

different antiseptics, and the opinions of eminent chemists and such operators as Keith, Pasteur, Sternberg and others. He nad not experimented with the different germicides because he had not the facilities.

Dr. King was not familiar with the results of experiments. All lecturers on surgery recommend the 1–40 and 1–20 solutions of carbolic acid, but Dr. Ellzey informs us that nothing less than 1–10 solution has germicidal powers. Why have not surgeons adopted this strength? Dr. Ellzey says that it is impossible to wash the vagina clean with douches. We may leave a million microbes, but do we not do some good if we wash out several millions? It may be true that some persons are susceptible to mercuric or carbolic acid poisoning, but that is no reason for abandoning them until we can find something better. He agrees with Dr. Ellzey in the value of high temperatures as nature's germicide, another proof of his theory of fever being a conservative process for the cure of disease.

Dr. J. Ford Thompson said this was the fist time that he had ever heard Dr. Ellzey on antiseptics, but some time ago he read an article of the doctor's on the same subject in which he took the same ground. He agrees with Dr. Ellzey in the efficacy of covering the wound with cotton, but he thinks the germs would be kept out better if the cotton was medicated. He had recently seen an article by Bantock upon antiseptic surgery, and this system was his rule of practice. He was surprised to find that Bantock states that antiseptic surgery has had its day; the practice being so common as to be almost universal. Bantock, Keith and Tait are specialists, and their work is almost entirely confined to the abdominal cavity, which, in his opinion, is the least adapted to antiseptics. Nor did he believe in weak solutions, which he thought simply lulled our suspicions to rest without being germicidal. However, he did not consider the question settled. He uses the bichloride solution of strengths varying from 1–1,000 to 1–10,000. There are certain situations on the body to which antiseptics cannot be properly applied, as, for instance, the eye, ear, nose and mouth. In these places, after a surgical operation, he considers it impossible to apply a strictly antiseptic dressing. He does not believe with the enthusiasts that when antiseptics are used there will be no suppuration. A certain amount of suppuration is an almost necessary concomitant of the reparative process and is innocuous.

He believes in the prevention of the entrance of bacteria into the wound by an antiseptic dressing. Putrescence is what we aim to prevent, and the antiseptic dressing is intended to shut out the germ of it. That antisepsis is the greatest God-send to surgery has been proved in every amphitheatre. In his practice he does not depend wholly upon antiseptic solutions, but uses them as aids. Every surgeon has a routine practice which is of more or less consequence to success. True, the parts may be washed with turpentine, ether, soap, etc., but that is not antisepsis, as is usually understood. Everything about the wound must be aseptic and as far as possible antiseptic—especially the dressings.

The dressing is the weak point in Dr. Ellzey's theory. He substitutes aseptic cotton for aseptic and antiseptic dressings. Guérin introduced this into field and hospital practice, but it is not now used. Let the doctor take cheese-cloth, boil it in soda, wash it and then let it soak in the mercuric solution for weeks. Is not this superior to non-medicated wool? Many things may be weeded out of antiseptic surgery, but the principle of antisepsis will remain the same, and never be abandoned. The incision in the abdominal wall is an ordinary incised wound and will heal without extra dressing, as that class of wounds will in any other situation.

Dr. T. C. Smith asked Dr. Thompson if the abdominal cavity, the eye, the mouth, etc., were not fields for testing the value of antiseptic surgery, what were?

Dr. Thompson replied that it was impracticable to test it on those special regions. It must be applied to surgery in general.

FOREIGN CORRESPONDENCE

LETTER FROM PARIS.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Fractures by Massage—Propagation of Typhoid Fever through the Air—Urobilinuria—A New Caustic Paste.

At a recent meeting of the Société de Chirurgie of Paris, Dr. Lucas Championnière read a report of two cases of fracture treated by massage. The one is relative to a fracture of the internal ankle, the other to a fracture of the lower third of the tibia without displacement. In the latter case, the patient was able to walk at the end of 25 days. To these two cases Dr. Championnière adds a third, the report of which he obtained from Dr. Lostrine, a surgeon, relative to a fracture of the lower third of both the bones of the leg. The patient was completely able to walk on the thirty-fifth day. From these cases, Dr. Championnière suggests that massage acts here not only in making supple the joints in the neighborhood of the fractures, but also, contrary to what might have been supposed, it favors the formation of the callus, and the explanation offered is that this result proceeds from the massage effecting the resorption of the effused products which interfere with the formation of the callus. According to Dr. Championnière's experience, it is only the first séance that is painful, but the patient soon gets accustomed to the massage and feels great benefit from it. During the operation pressure should be made in the neighborhood of the fracture, but not on the fracture. Dr. Berger observed that the patient of Dr. Championnière who walked on the thirty-fifth day after a fracture of the leg, proves nothing in favor of the superiority of this method, as similar results are frequently obtained by the old procedures of treatment. Moreover, Dr. Berger understands that the method may be serviceable for fractures of the articular extremities of bones, in which there is no great danger

of false joint, but for diaphysitic fractures he understands the utility of massage less, as in such cases one should always fear the formation of false joints. Dr. Marc Sée stated that he obtained the same results as Dr. Lucas Championnière by means of the elastic band. He considers this as being a great deal more simple, and, in any case, it never requires the sittings of massage of one hour and a half, which would constitute a serious obstacle to the introduction of this method in practice.

Dr. Féréol lately read a paper at the Société Médicale des Hôpitaux, in which the author, Dr. Devalz, of Eaux-Bonnes, intended to show that typhoid fever may be propagated through the air as well as by the fluid or solid substances introduced into the stomach. The following illustrative case is given by the author: A lady arrived at Eaux-Bonnes from Paris with the primary symptoms of typhoid fever, of which she was cured at the end of four weeks. Three daughters of the proprietor of the hotel in which the lady was staying, who occupied a room adjoining the privy in which the dejections of the patient were thrown, successively fell ill with the malady. The author thinks that he has a right to conclude from this circumstance that in this case, at least, the disease was communicated through the air which circulated freely between the privy and the room occupied by the patients, every precaution having been taken to prevent contamination of the food or drinking-water.

At the same meeting Professor Hayem read a very interesting article giving the results of his researches on urobilinuria. The author demonstrated how, by the aid of the spectroscope, urobiline may be recognized in the serum of the blood and in the urine. In the second part of his work, Professor Hayem devotes some considerations to clinical results. According to him, the excretion of an abnormal quantity of urobiline constitutes urobilinuria. This phenomenon may be transitory, or it may be intermittent, or it may present itself in a permanent manner. When the affection is slight, the color of the urine is scarcely altered, but when well marked, we have the hemapheic urine of Gubler. Urobiline is found in the urine, either alone, or associated with a more or less considerable quantity of biliary pigments. It is found constantly during the periods of asystolic cardiac affections. It is frequently met with in intoxications, diseases of the liver, cerebral affections, and in certain chronic maladies. It is also frequently met with in the greater part of acute affections. Dr. Hayem does not believe that urobiline alone can produce jaundice. Finally he had been able to establish, in all the cases in which he observed urobilinuria, a venous stasis of the liver with slight catarrh of the biliary ducts, and with infiltration or fatty degeneration of the hepatic cells. In the third part of his paper, Dr. Hayem studied the origin of urobiline. For the learned Professor, the diseased liver, instead of secreting normal pigments, secretes urobiline, which, according to certain clinical facts, would pass directly from the biliary canalicules into the blood. In conclusion, Dr. Hayem establishes the prognostic value of the symptom of urobilinuria as follows: When temporary it indicates temporary modifications of the hepatic circulation. When permanent, it indicates infiltration or the fatty degeneration of the hepatic cells.

The powerfully modifying action of caustics has always been considered a precious resource in surgical practice. According to the *Courrier Médical* Dr. Jules Felix, of Brussels, finding a great number of inconveniences attending the ordinary caustics in use, proposes a paste as a substitute for them. The following is the formula of the paste: Powdered starch 37 grams, wheat flour 112 grams, bichloride of mercury 1 gram, dried chloride of zinc 110 grams, pure iodol 10 grams, croton-chloral 10 grams, bromide of camphor 10 grams, crystallized carbolic acid 10 grams; all to be mixed up in a glass mortar, the ingredients being well pulverized separately, and gradually add to the whole the quantity of distilled water necessary to obtain a homogeneous paste, which keeps in a perfect state of preservation for an indefinite time. When required to be used the quantity necessary should be pressed in the hand previously moistened, and the paste could then be pressed into any shape or form. The author claims the following advantages for this preparation: 1. Pain very supportable and slightly intense, without any general reaction. 2. Production of an eschar which is hard and well limited, detaching itself quickly or allowing itself to be easily removed with a sharp instrument or by scraping. 3. Marked modifying and antiseptic action. 4. Powerful hæmostatic. 5. Easy to be manipulated and put into any form according to circumstances. 6. This caustic not being fusible, nor deliquescent, may be easily applied to any part, where it may remain more or less long time (from 6 to 24 hours), according to the intensity of action the surgeon may wish to obtain. 7. The eschars fall off in a few days, by the application of glycerine with or without carbolic acid. A. B.

DOMESTIC CORRESPONDENCE

SALIVARY FISTULA.

In June, 1885, I excised a sebaceous tumor which had been located mostly in the space bounded by the angle of the jaw in front, and the lobe of the ear above. The tumor had lain partly over the parotid gland in front of the lobe of the ear. I had expected to be able easily to lift the tumor out of its bed after making a free incision; but I found it very tightly bound down and intimately connected by areolar tissue—with the surrounding tissues—making a careful dissection necessary to dislodge it. The operation was very bloody and my assistance was indifferent, but the tumor was ultimately dislodged. The wound seemed to be healing kindly until one day my patient informed me that at times a gush of fluid flowed from what was a small remnant of the wound. I became aware that I had a salivary fistula to contend with. I must have wounded the parotid gland with the scalpel in dissecting out the tumor and in removing what was simply a deformity, I had substituted an affliction which

was an active nuisance far more troublesome than the original deformity.

Examination showed the existence of a fistulous channel with a diameter of about three-sixteenths of an inch, and from this channel the saliva flowed freely whenever food or any sapid substance was taken into the mouth. My patient's complaint was temperate though mildly reproachful, and he was solicitous for relief from this new affliction.

I kept my patient's mind occupied for a time, in what I knew to be useless efforts to heal the sinus until I might think out an efficient scheme. After carefully looking over the methods of Ericson and Bryant I concluded that the use of the cautery in their cases was irrational—and also that the nature of the salivary sinus such as my case afforded data to—which might be fitted a rational method of cure.

The healing of a salivary fistula is prevented by the intermittent flow of saliva—which bathes the walls of the sinus, and prevents union. When an acute inflammation occurs, in the parenchyma of a gland, the cells affected by this inflammation cease to form their particular secretion until the inflammation becomes resolved. Therefore to heal a salivary fistula, it is necessary to induce an acute inflammation in the secreting cells of the gland, and at the same time an adhesive inflammation of the walls of the sinus, that obliteration of the sinus by adhesion may be effected before the cells of the gland resume their proper function—by the abatement of the inflammation affecting them. The actual cautery induces such an inflammation as is needed, both in the cells of the gland and in the walls of the sinus; but it does more, it kills what tissue it touches and before union can occur the sloughs must come away; and by this time, the function of the secreting cells is reëstablished and the same state of affairs exists as before the use of the cautery.

In my case, I filled the sinus completely with fly-blister, and let it remain several hours. After removing the fly-blister, the sinus was pulled together with adhesive straps. This resulted in a partial union of the sinus. I next painted the sinus to its bottom with cantharidal collodion and again pulled it together with adhesive straps, and the result was a complete union of the walls of the sinus, and permanent cure of the difficulty, as two years have now elapsed and the channel has not re-opened.

These remarks apply of course only to such cases as are not complicated with obstructions in the duct proper of the gland and to cases only of traumatism directly to the gland itself.

J. W. Brown, M.D.

Silverton, Colo., July 16, 1887.

INTUBATION.

Dear Sir:—I have devised the following improvement on the O'Dwyer intubation set, which entirely obviates the difficulty of properly adjusting the extractor:

An eye should be drilled in the anterior or stationary jaw of extractor, about its centre, and from the inner opening a groove cut to the tip of jaw sufficient to accommodate the double thread coming from the tube. The thread hole in tube should be drilled about 1 inch from neck of tube, having its external opening countersunk to receive knot on thread. Both ends of thread should emerge from upper opening of tube, the obturator being grooved for their reception. Now by introducing the free ends of thread into the eye of extractor, the extractor is threaded into the tube with facility and precision.

For the application of nitrate silver solutions I suggest the following: To one end of a small glass tube attach the bulb of a medicine dropper, to the other a camel's-hair pencil, the quill of which is made pervious; or a piece of sponge or cotton may be made to answer for the brush end. A U-shaped bend should be made near the bulb. With this the solution may be applied in any quantity without danger of the disagreeable dripping so common with an ordinary brush. Respectfully,

W. V. Morgan, M.D.

Indianapolis, May 12, 1887.

NEW INSTRUMENTS.

IMPROVED NASAL SPECULUM.

BY I. W. FINK, M.D.

HILLSBORO, ILL.

Necessity is said to be the mother of invention, therefore appears the accompanying cut, representing an instrument brought into existence by me for the examination of the nasal passage—a Nasal Speculum. Like many other instruments intended for the same purpose, it has its good qualities as well as its faults.

If it is worthy of merit, it is worthy of publication, and the medical profession is entitled to its use.

NECROLOGY.

J. W. D. OSGOOD, M.D.

Jonathan Walter Dandola Osgood, M.D., of Greenfield, Mass., was born in Gardner July 29, 1802. He was the son of Rev. Jonathan Osgood, M.D.—a graduate of Yale, and for many years the only minister and physician of his town—and Orange Wadsworth, of Farmington, Conn. The subject of this notice was graduated at Dartmouth College in 1823.

He studied medicine in Philadelphia and Dartmouth, taking his medical degree in 1826. He opened an office in Providence, R. I., but remained there only a few months, beginning his practice in Templeton, Mass., in 1827. In 1858 he removed to Greenfield, Mass., where he died May 15, 1885.

The son of a man who stood high, both as a clergyman and a physician, Dr. Osgood naturally had a deep sense of the dignity of his profession. He entered it not for gain nor for a livelihood merely, but as a sphere of beneficent service, alleviating the ills and promoting the welfare of his fellow men, and therefore entitled to the best energies at his command. Accordingly he was always an earnest student in both the theory and practice of medicine. He entered actively into medical societies, being a member of the Worcester District Medical Society, of the Massachusetts Medical Society—of which he was once Vice-President—and also of the American Medical Association since 1853, and pretty constant in his attendance. He kept up with the literature of his profession, even in his old age. For the acquainting of himself with all lines of progress in his work he frequently visited the hospitals of New York and other large cities. As a consequence he was fresh and living in his knowledge, and growing skilful as a practitioner. He not only had a large practice in his own community, but was also in wide demand for counsel elsewhere. He excelled in diagnosis and was a good surgeon, ever ready in expedients at times of emergency. His gifts were exercised in a spirit of such genuine interest in his patients, with such gentleness and faithfulness, that he made himself the trusted and beloved friend, and almost a member, of every family that he served.

In his relations to the members of his profession he was the soul of honor, regarding scrupulously their rights, observing with delicacy professional proprieties, and always commanding the respect and confidence of his associates. Outside of his profession he had business interests but no business activities, only taking pains to be connected with men whom he could implicitly trust, that he might give his entire attention to the duties of his chosen calling. Beyond his profession he read widely, having an intelligent interest in science, biography, and especially history. At the time of his birth his father was evidently a reader of history, and had become an admirer of the celebrated Doge of Venice, Enrico Dandolo, of illustrious patrician family, who bore glorious part in the Latin conquest of Constantinople, which so changed the face of Europe. It was this admiration of a character distinguished in history that conferred upon the subject of this sketch his third name.

Dr. Osgood was exceedingly happy in the formation and development of his domestic relations, but through the vicissitudes of a long life he was called to drink deep of the cup of domestic sorrow. In 1834 he married Eliza, the daughter of General Lewis Barnard, of Worcester, Mass. She died in 1835, leaving a son, Walter Barnard. In 1838 he married Mima Florella, daughter of Dr. James Stone, of Phillipston, Mass. Of this marriage there were born three children, James Stone, Eliza Florella, and Caroline Phebe. In 1868, after thirty years of domestic felicity, Dr. Osgood was called upon to part from the wife who had shared largely in creating as well as enjoying his general prosperity. Four years later his older son, Walter Barnard, on whom he had come to lean with confidence and pride, was taken from him. Seven years elapsing, in 1879, his younger daughter, to whom he was tenderly devoted, after a protracted and distressing illness, passed from his sight. As Dr. Osgood had accepted his prosperity with wise soberness, so he endured his afflictions with Christian fortitude. One great blessing was accorded unto him to the end, of which he often spoke with devout thankfulness. It was the affectionate devotion, the intelligent sympathy, the always adequate helpfulness of the daughter that survives him.

Dr. Osgood was true to the faith of his Christian parentage. He was not a church member, for the creeds with which he was acquainted perplexed him; but he freely avowed his faith in the Lord Jesus Christ as his saviour. His last illness was very distressing, the autopsy revealing ossification of the coronary passages of the heart; but his mind was clear and his interest in the important affairs of the time was unabated. His bible was a constant companion. He was frequently in prayer. He endured his sufferings with resignation, and met death with Christian composure. S. H. L.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 24, 1887, TO SEPTEMBER 30, 1887.

Lt.-Col. A. K. Smith, Surgeon, granted leave of absence for one month and fourteen days, to take effect upon his being relieved from duty at U. S. Military Academy. S. O. 223, A. G. O., September 24, 1887.

Capt. R. W. Johnson, Asst. Surgeon, granted leave of absence for twenty-one days, to be taken advantage of so that he will return to his station at latest by the middle of October, 1887. S. O. 204, Div. Atlantic, September 23, 1887.

First Lieut. W. D. Dietz, Asst. Surgeon, leave of absence extended one month. S. O. 223, A. G. O., September 24, 1887.

First Lieut. Wm. L. Knudler, Asst. Surgeon, ordered to accompany Light Battery "F." Fourth Artillery, from Ft. Snelling, Minn., to the International Military Encampment at Chicago, Ill. S. O. 97, Dept. Dak., September 20, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING OCTOBER 1, 1887.

Asst. Surgeon V. C. B. Means, ordered for examination preliminary to promotion.

P. A. Surgeon E. Z. Derr, detached from Navy Yard, New York, and to the "Nipsic."

P. A. Surgeon Richard Ashbridge, detached from Naval Academy, Annapolis, Md., and wait orders.

P. A. Surgeon A. H. Russell, ordered to the Naval Academy, Annapolis, Md.

P. A. Surgeon C. G. Herndon, detached from Naval Dispensary, Washington, D. C., and to the "Enterprise."

P. A. Surgeon Geo. Arthur, detached from the Museum of Hygiene, Washington, D. C., and to the Naval Dispensary.

P. A. Surgeon S. H. Griffiths, ordered to the Museum of Hygiene, Washington, D. C.

Medical Inspector J. C. Spear, leave of absence granted until July 1, 1888, with permission to leave the United States.